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# COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

## Item 12 of the Provisional Agenda

### Twentieth Regular Session

Rome, 24–28 March 2025

## SUBMISSIONS BY INTERNATIONAL INSTRUMENTS AND ORGANIZATIONS

### TABLE OF CONTENTS

	Pages
I. Introduction.....	2
II. Submissions by international instruments and organizations	
A. Convention on Biological Diversity .....	3
B. International Union for the Protection of New Varieties of Plants .....	10
C. United Nations Industrial Development Organization.....	15
D. Arab Center for the Studies of Arid Zones and Dry Lands .....	16
E. CGIAR.....	20
F. Global Crop Diversity Trust .....	32
G. Global Forum on Agricultural Research and Innovation.....	47
H. International Seed Federation .....	52
I. Islamic Organization for Food Security.....	60
J. Oxfam.....	62
III. Submissions by other organizations	
A. China Biodiversity Conservation and Green Development Foundation .....	64
B. French Interprofessional Organisation of Seeds and Plants .....	66

## I. INTRODUCTION

1. The Commission, at its Nineteenth Regular Session, thanked the international instruments and organizations for providing information on their policies, programmes and activities relevant to the prioritized themes of the session, and requested the Secretary to continue seeking inputs on prioritized themes of its regular sessions from international instruments and organizations and to make them available to the Commission for its information.
2. The Commission operates under a Multi-Year Programme of Work or MYPOW, a planning tool to schedule and review its work, with a rolling horizon of five Commission sessions (i.e. ten years). The MYPOW was adopted by the Commission in 2007 and last revised in 2023. In the context of its MYPOW, the Commission has welcomed the proposal to reduce routine reporting, in favour of focused consultations of international instruments and organizations on prioritized themes of the session.
3. FAO invited through Circulate State Letter C/OCB-725-ORG-13 relevant international instruments and organizations to provide focused information on their policies, programmes and activities relevant to the Commission's Twentieth Regular Session. This document compiles the seven submissions received by the Secretariat, for information of the Commission. Submissions originally received for information of the Twelfth Session of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture have also been included in this document and are identified by a footnote.

## II. SUBMISSIONS BY INTERNATIONAL INSTRUMENTS AND ORGANIZATIONS

### A. CONVENTION ON BIOLOGICAL DIVERSITY

#### Introduction

The Secretariat of the Convention on Biological Diversity (CBD) is providing this brief report for the information of the Twentieth Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA).

The report provides information on outcomes from activities of the CBD and its Protocols<sup>1</sup>, since the Nineteenth Regular Session of the CGRFA, and it focuses on inter-sessional activities relevant to the prioritized themes of the Twentieth Regular Session of the CGRFA as requested by its Secretariat.

#### Cross-sectoral matters

##### Climate change and genetic resources for food and agriculture

At its sixteenth meeting, the Conference of the Parties to the Convention (COP) adopted decision 16/22<sup>2</sup> on biodiversity and climate change. Of relevance to the CGRFA, the decision urges Parties to the CBD to implement effective social and environmental safeguards to promote the positive, and avoid or, if not possible, minimize, the negative impacts of climate actions on biodiversity, ecosystem integrity, functions and services, including for vulnerable species, and ecosystems important for the full carbon cycle or to which damage is irreversible, in particular for indigenous peoples and local communities and relevant stakeholders that directly depend on biodiversity.

##### Access and benefit-sharing for genetic resources for food and agriculture

Goal C and Target 13 of the Kunming-Montreal Global Biodiversity Framework (KMGBF) address access to genetic resources and benefit-sharing. Both the goal and the target make reference to international access and benefit-sharing instruments and as such, their application is not limited to Parties to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization ('Nagoya Protocol') but also includes the CBD and the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA) amongst others.

The fifth meeting of the Conference of the Parties serving as the meeting of the Parties (COP-MOP) to the Nagoya Protocol was held concurrently with the sixteenth meeting of the Conference of the Parties to the Convention.

The COP-MOP adopted numerous decisions including decision NP-5/4<sup>3</sup> on enhancing the implementation of the Nagoya Protocol in the context of the KMGBF. In the decision, the COP-MOP invited Parties to the Protocol and encouraged other Governments: to address all elements of Goal C and Target 13 when developing national targets and revising or updating national biodiversity strategies and action plans; to put in place the mechanisms and tools needed for the collection of national information on monetary and non-monetary benefits received to be able to report on progress; and to include the capacity and financial needs for collecting national information on monetary and non-monetary benefits received and implementing the Nagoya Protocol as part of the updating and revising of national biodiversity strategies and action plans.

Countries continue to publish national information in the Access and Benefit-Sharing Clearing-House. As of 29 January 2025, more than 5,400 access permits or their equivalent constituting internationally

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<sup>1</sup> The Convention has two protocols: (1) Cartagena Protocol on Biosafety and (2) Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization

<sup>2</sup> <https://dev-chm.cbd.int/doc/decisions/cop-16/cop-16-dec-22-en.pdf>

<sup>3</sup> <https://www.cbd.int/doc/decisions/np-mop-05/np-mop-05-dec-04-en.pdf>

recognized certificates of compliance have been published. In addition, more than 250 checkpoint communiqués have been published as part of the system for monitoring the utilization of genetic resources.

Further information on the status of national implementation of the Nagoya Protocol will be provided through the first national reports on implementation of the Protocol, which are due by 28 February 2026. Parties are urged to submit their first national reports in time to allow for sufficient time for the analysis of the data.

#### Digital sequence information and genetic resources for food and agriculture

At its fifteenth meeting, the COP adopted decision 15/9<sup>4</sup> on digital sequence information on genetic resources (DSI). Among other aspects, the decision sets out that benefits arising from the use of DSI should be shared fairly and equitably. The COP also established, as part of the KMGBF, a multilateral mechanism for benefit-sharing from the use of DSI, including a global fund. The decision set out a process for the further development and operationalization of the mechanism, to be finalized at COP-16.

The process included the establishment of the Ad Hoc Open-ended Working Group on Benefit-sharing from the Use of Digital Sequence Information on Genetic Resources ('Working Group') to undertake the further development of the multilateral mechanism.

The Working Group met in November 2023 and August 2024. During this process, the Secretariat of the CGRFA conveyed the Commission's background study paper on 'The role of digital sequence information in the conservation and sustainable use of genetic resources for food and agriculture: opportunities and challenges' to the Secretariat of the CBD to be made available to the Working Group. The study was included among the documentation for the second meeting of the Working Group<sup>5</sup>.

The sixteenth meeting of the Conference of the Parties considered the recommendation of the Working Group and adopted decision 16/2<sup>6</sup> on DSI. In this decision, the COP adopted the modalities for operationalizing the multilateral mechanism for the fair and equitable sharing of benefits from the use of DSI, including a global fund. The global fund is to be known as the 'Cali Fund for the Fair and Equitable Sharing of Benefits from the Use of Digital Sequence Information on Genetic Resources' and the modalities for the mechanism are set out in the annex to the decision<sup>7</sup>.

#### Cartagena Protocol on Biosafety and Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress

The eleventh meeting of the COP-MOP to the Cartagena Protocol was held concurrently with the sixteenth meeting of the Conference of the Parties to the Convention.

At its eleventh meeting, the COP-MOP welcomed the additional voluntary guidance materials to support the case-by-case risk assessment of living modified organisms (LMOs) containing engineered gene drives (as contained in document CBD/CP/MOP/11/9). It invited Parties and stakeholders to make use of the additional voluntary guidance materials in conducting relevant risk assessments and as a tool for capacity-building activities in risk assessment. The COP-MOP established an ad hoc technical expert group (AHTEG) on risk assessment to evaluate the needs and priorities for further guidance materials on specific topics of risk assessment of LMOs identified by Parties and invited Parties to submit information on their needs and priorities for further guidance materials. The information submitted will be considered by the Open-ended Online Forum on Risk Assessment and Risk Management and the AHTEG. The report of the AHTEG will be considered by the Subsidiary Body on Scientific, Technical and Technological Advice which will make recommendations to COP-MOP 12.

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<sup>4</sup> <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.pdf>

<sup>5</sup> <https://www.cbd.int/meetings/WGDSI-02>

<sup>6</sup> <https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-02-en.pdf>

<sup>7</sup> The modalities of the multilateral mechanism and the Cali Fund are summarized in Annex I of this report.

### **Biodiversity for food and agriculture**

The Secretariat of the CBD and the Secretariat of the CGRFA have been closely collaborating on multiple occasions.

The Secretariat of the CBD participated in the nineteenth regular session of the CGRFA which was held in Rome, Italy, from 15 to 21 July 2023 and delivered a keynote speech for the fortieth anniversary of the Commission which was celebrated during the special event “Connecting the dots: biodiversity, food & agriculture - Towards biodiversity-friendly agri-food systems”. This event was organized by the Commission in collaboration with the CBD and the ITPGRFA. The event was also an opportunity to celebrate the historic agreement on the KMGBF and its interlinkages with the work of the Commission. The CBD organised a booth in the exposition area where information about the KMGBF and other relevant materials were featured and presented. Statements were delivered by the Secretariat of the CBD during the opening ceremony and on agenda items relevant to the work of the Convention.

The First Session of the Ad Hoc Expert Team on Biodiversity for Food and Agriculture (Expert Team) was held in Rome, Italy, from 2 to 4 July 2024. The Secretariat of the CBD delivered a video statement<sup>8</sup> noting that collaboration between the CBD, FAO and the Commission is exemplary and has been appreciated and encouraged in numerous CBD COP decisions. The video message also highlighted the importance of FAO’s contributions to furthering the objectives of the CBD, including by supporting the implementation of the KMGBF.

The Open-ended Workshop on Biological Control Agents and Biostimulants was held in Rome, Italy, from 23 to 24 September 2024 in collaboration with the CBD, CABI International and the International Organization for Biological Control and supported by the European Union through the programme “Building capacity related to Multilateral Environmental Agreements in African, Caribbean and Pacific Countries”. A representative of the Secretariat of the CBD delivered a video statement<sup>9</sup> noting the importance of collaboration between the CBD, FAO and the Commission and highlighting that the conclusion of this work will contribute to the achievement of their common objectives. The video message also referred to the importance of biological control to achieve Target 6, Target 7 and Target 10 of the KMGBF.

The Secretariat of the CBD was also represented at the First Session of the Intergovernmental Technical Working Group on Microorganism and Invertebrate Genetic Resources for Food and Agriculture held in Rome, Italy, from 25 to 27 September 2024. All the agenda items of this session were relevant to the work of the CBD. The Secretariat of the CBD provided a statement on agenda Item 7 “Possible modalities of a global pollinator platform”. Through the statement, the Secretariat expressed gratitude to the Commission and FAO for their ongoing work related to microorganism and invertebrate genetic resources for food and agriculture, including the Commission report on the status of implementation of the International Pollinator Initiative, noting that the conservation and sustainable use of pollinators contribute to multiple targets of the KMGBF and SDGs. The establishment of the global pollinator platform has the potential to support the implementation of the International Pollinator Initiative, including the development of coherent policies at all levels, best practices, capacity-building, awareness raising and monitoring. A more formalized entity that could be dedicated to the global coordination of pollinator-related activities is vital in achieving the goals of the International Pollinator Initiative.

As part of the KMGBF Pavilion at COP-16, the CBD in partnership with FAO (including the CGRFA and the ITPGRFA) and the Government of Colombia, hosted the Food Day on 28 October 2024. The Food Day was very successful, highlighting the importance of biodiversity as the foundation of food security and nutrition, which includes the genetic diversity in the crop varieties and livestock breeds that are the basis of people’s diets, the wild species that contribute to the supply of food and materials, and the ecosystems whose functions and services support production. The Food Day aimed to strengthen

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<sup>8</sup> <https://vimeo.com/970950023/23cc213af2?share=copy>

<sup>8</sup> <https://vimeo.com/1008931465/bb431444ad?share=copy>

collaboration among partners and agrifood systems actors. It was an opportune moment to support countries in updating their national biodiversity strategies and action plans (NBSAPs), the key implementation instruments under the Convention, to reflect the targets of the KMGBF and other global commitments.

From 2021 to 2024, under the framework of the European Union funded project ‘Building capacity related to Multilateral environmental agreements in African, Caribbean and Pacific Countries (ACP MEAs 3)’, FAO and the Secretariat of the CBD jointly organized a series of regional information webinars. After the KMGBF adoption, the webinars focused on unpacking the Framework with a focus on the targets related to agricultural biodiversity. The objective was to sensitize the focal points of various MEAs and relevant stakeholders on the importance of collaborating in reviewing, updating and implementing NBSAPs and the sixth national reports and meeting their obligations under the CBD. More than 220 participants from the African region (84), Caribbean region (79) and Pacific region (58) participated.

### Implementation of the Framework for Action on Biodiversity for Food and Agriculture

During its fifteenth meeting the Conference of the Parties to the CBD, a monitoring framework to track the implementation of the KMGBF was adopted in decision 15/5<sup>10</sup>. The goals and targets of the KMGBF and the indicators identified in its monitoring framework enable many possible synergies with processes under or linked to the work of the FAO and the CGRFA. In addition, Parties to the CBD are currently developing or revising their NBSAPs, a process which creates numerous opportunities for identifying and developing national level synergies between processes under the Convention and other international processes and frameworks.

At the resumed session of the sixteenth meeting of the Conference of the Parties to the Convention, Parties are expected to, among other things, agree on technical updates to the monitoring framework for the KMGBF and measures to further develop its mechanisms for planning, monitoring, reporting and review<sup>11</sup>.

### Plant genetic resources

The Global Strategy for Plant Conservation, adopted in 2002 under the CBD (Decision VI/9<sup>12</sup>), addresses the challenges posed by threats to plant diversity. The overall purpose of the Strategy is to achieve the three objectives of the Convention<sup>13</sup>, particularly for plant diversity, taking into consideration Article 8(j) of the Convention and the Cartagena Protocol on Biosafety. The Strategy applies to the three primary levels of biological diversity as recognized by the Convention, hence plant genetic diversity, plant species and communities and their associated habitats and ecosystems. At its sixteenth meeting, the Conference of the Parties to the CBD adopted a set of voluntary complementary actions related to plant conservation to support the implementation of the KMGBF (Decision 16/20<sup>14</sup>). The actions, to be implemented by 2030, are closely aligned with the targets of the Framework, and are aimed at providing a strategy for the botanical communities and a framework for action on plants for all stakeholders. Of particular relevance to plant genetic resources are voluntary complementary action 4 related to plant species conservation including the conservation of genetic diversity, and action 13 on access and benefit-sharing for plant conservation. Action 21, related to plant information systems, calls

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<sup>10</sup> <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-05-en.pdf>

<sup>11</sup> The resumed session, held on 25-27 February 2025 at FAO Headquarters, in Rome, Italy, was yet to be held at the time this report was submitted to the Secretariat of the Commission on Genetic Resources for Food and Agriculture.

<sup>12</sup> <https://www.cbd.int/decision/cop/default.shtml?id=7183>

<sup>13</sup> The Convention on Biological Diversity entered into force on 29 December 1993 and it has three main objectives: the conservation of biological diversity; the sustainable use of the components of biological diversity; the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

<sup>14</sup> <https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-20-en.pdf>

for consideration of ongoing work and processes carried out under relevant organizations, such as the FAO and its CGRFA.

### **Forest genetic resources**

The adoption of KMGBF set the new global targets that are relevant to the conservation and sustainable use of forest genetic resources. The Secretariat of the CBD jointly with FAO and the Secretariat of the United Nations Forum on Forest (UNFF) published a report “The Forest Factor”<sup>15</sup> on the role of protection, restoration and sustainable management of forests in the implementation of the KMGBF. The report highlights the interlinkages between the KMGBF targets and forest biodiversity, including forest genetic diversity. The KMGBF targets on restoration, protection and sustainable management of biodiversity as well as the targets on traditional knowledge, indigenous peoples and local communities, and gender equality are closely interlinked with the Priority Areas and Strategic Priorities of the draft revised Global Action Plan for the Conservation, Sustainable Use and Development of Forest Genetic Diversity.

The decision CBD COP 16/12<sup>16</sup> requested the Secretariat to conduct a strategic review and analysis of the programmes of work of the Convention in the context of the Framework to facilitate its implementation, and on the basis of this analysis, to prepare draft updates of those programmes of work. The review and update of the forest biodiversity programme of work will be conducted in 2025 to be submitted to the twenty-seven meeting of the Subsidiary Body on Scientific, Technical and Technological Advice in October 2025 prior to COP-17 in 2026.

During the period of 2023-2024, the Secretariat of the CBD continued the implementation of the Forest Ecosystem Restoration Initiative (FERI) funded by Korea Forest Service and hosted by the Secretariat of the CBD. Over the reporting period, FERI focused on the development of the decision-support tool for spatial planning for forest landscape restoration, providing support to countries in the implementation of KMGBF Target 2 on restoring 30% of degraded ecosystems and fostering synergies and complementarities with the Global Forest Goals under the UN Strategic Plan on Forests 2030.

Over the period of 2023- 2024, the Secretariat of the CBD in partnership with the FAO Forestry Division, Society of Ecological Restoration, and CIFOR-ICRAF and in consultation with the CBD Parties and observers, led the development of the resource guide<sup>17</sup> on KMGBF Target 2 “Delivering Restoration Outcomes for Biodiversity and Human Well-being: Resource Guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework”. Among other topics, the guide presents the principles of effective restoration and rehabilitation of ecosystems.

At CBD COP-16, the Secretariat of the CBD jointly with the members of Collaborative Partnership on Forests organized Forest and Water Day<sup>18</sup> highlighting the threats and solutions for forest biodiversity. During the Forest and Water Day, the Secretariat of the CBD jointly with the Secretariat of the UNFF launched the joint initiative on advancing the role of natural forests in the global environmental agenda. The initiative will foster collaboration among countries and agencies to collectively elevate the recognition of natural forests, especially primary forests, within the framework of the three Rio Conventions, the UN Forum on Forests and the Sustainable Development Goals.

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<sup>15</sup> <https://www.cbd.int/forest/doc/forest-factor-en.pdf>

<sup>16</sup> <https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-12-en.pdf>

<sup>17</sup> <https://www.fao.org/ecosystem-restoration-monitoring/about/gbf-target-2/guide/en>

<sup>18</sup> <https://www.cbd.int/conferences/2024/parallel-meetings/kmgbf-pavilion-forests-water-day>

## **Annex I: Modalities of the Multilateral Mechanism**

The modalities for the mechanism begin by describing the digital sequence information on genetic resources that is covered by the mechanism (para. 1). The modalities indicate that all users of digital sequence information on genetic resources under the mechanism should share benefits and commercial users should contribute monetary benefits to the Cali Fund (para. 2).

For monetary benefit-sharing, the modalities provide that users of digital sequence information on genetic resources in sectors that directly or indirectly benefit from its use in their commercial activities should contribute a proportion of their profits or revenue to the global fund, according to their size. The modalities state that entities that, on their balance sheet dates, exceed at least two of three thresholds averaged over the preceding three years should contribute to the global fund 1 percent of their profits or 0.1 percent of their revenue as an indicative rate. The thresholds are total assets of US\$20 million, sales of US\$50 million and profit of US\$5 million (para. 3). Enclosure I to the modalities provides an indicative list of the sectors to which such users may belong. It includes nutraceuticals (food and health supplements), animal and plant breeding and biotechnology. It also indicates that the list is without prejudice to digital sequence information on genetic resources covered by other international agreements on access and benefit-sharing.

Public research and academic institutions and entities operating public databases are not expected to make monetary contributions to the Cali Fund (para. 9).

On non-monetary benefit-sharing, the modalities provide that all users of digital sequence information on genetic resources should share non-monetary benefits. Non-monetary benefit-sharing is complementary to the provisions on monetary benefit-sharing (para. 6). The sharing of non-monetary benefits is to be facilitated through the long-term strategic framework for capacity-building and development of the Convention (decision 15/8<sup>19</sup>, annex I) and its mechanism to strengthen technical and scientific cooperation in support of the KMGBF (para. 7).

In the modalities, Parties and non-Parties are invited to take measures, consistent with national legislation, to incentivize users in their jurisdiction to contribute to the Cali Fund (para. 13). Contributions to the Cali Fund are expected to be made directly by companies but may be made through a national authority. Receipts will be issued at the point of contribution to the Cali Fund (para. 14).

For each year that users make monetary contributions to the Fund in line with the modalities, they will be considered as having fairly and equitably shared monetary benefits arising from the use of DSI under the multilateral mechanism and will receive a certificate accordingly. Such a certificate excludes the user from any expectation to share further monetary benefits from the use of such information within the scope of the multilateral mechanism for that year (para. 15).

How money from the Cali Fund will be allocated is addressed in paragraphs 17 to 22 of the modalities and is also subject to further intersessional work in 2025-2026. According to paragraph 18 of the modalities, funding should support the realization of the objectives of the CBD, especially the conservation and sustainable use of biodiversity, in developing country Parties and Parties with economies in transition. Funding should also benefit indigenous peoples and local communities and support the building of capacity to generate, access, use, analyse and store digital sequence information on genetic resources. Funding will also be available for these purposes to indigenous peoples and local communities in developed countries, where appropriate.

In the event that any other intergovernmental forums decide to make use of the multilateral mechanism to share the benefits from the use of digital sequence information on genetic resources, the funding should also support the realization of their objectives.

Funding will be disbursed through direct allocations to counties (para. 20). Where appropriate, and subject to national circumstances and national legislation, at least half of the money of the Cali Fund

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<sup>19</sup> <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-08-en.pdf>



should support the self-identified needs of indigenous peoples and local communities (para. 21). Enclosure II to the modalities contains indicative criteria for the allocation of funding. An ad hoc technical expert group will work during the inter-sessional period to provide technical advice and guidance on the allocation methodology to enable COP-17 to take a decision on this matter.

The Cali Fund will be administered by the United Nations through its Multi-Partner Trust Fund Office (para. 23). The Secretariat of the CBD is working with the Multi-Partner Trust Fund Office to make the administrative arrangements necessary to launch the Cali Fund as soon as possible.

The multilateral mechanism, including the Cali Fund, will operate under the authority and guidance of and be accountable to the Conference of the Parties. A steering committee will support the COP, and a secretariat will serve the steering committee and support the functioning of the mechanism.

Paragraph 27 of the modalities provides that the “multilateral mechanism will be implemented in a way that is mutually supportive of and adaptive to other international access and benefit-sharing instruments on digital sequence information on genetic resources, to avoid the stacking of obligations and, where appropriate, to streamline processes. The governing bodies of other international access and benefit-sharing instruments are invited to collaborate with the multilateral mechanism and, where appropriate, to streamline processes. The provisions of the mechanism will not affect the rights and obligations of any Party deriving from any existing international agreement.”

The decision also addresses data governance. Paragraph 10 of the modalities sets out a number of steps that entities operating databases, tools and models that are dependent on digital sequence information on genetic resources should take. Paragraph 11 states that Parties funding, sponsoring or hosting sequence databases should ensure that the entities operating such databases take measures to implement the decision. In paragraph 4 of the decision, the COP decided to explore possible new tools and models, such as databases, for making digital sequence information on genetic resources publicly available and accessible in a transparent and accountable manner to all Parties. The matter will be considered further at COP-17.

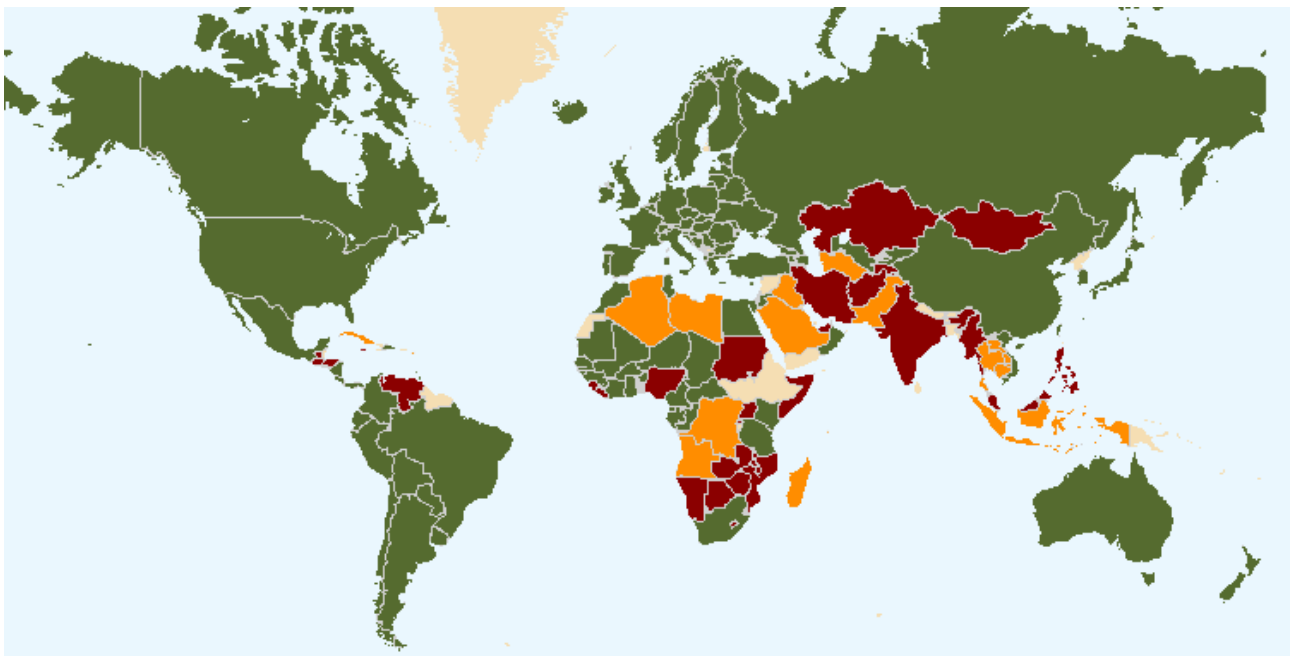
The effectiveness of the multilateral mechanism, including the Cali Fund will be reviewed by the Conference of the Parties. The first review will take place at the COP-18 (2028), and then the mechanism will continue to be reviewed at every second subsequent COP (para. 29). Enclosure VI to the modalities sets out the factors to be considered in this review and includes a factor relating to any interactions and synergies between the operation of the multilateral mechanism and other multilateral access and benefit-sharing instruments. In light of the review, COP-18 will consider any adjustments necessary to improve the effectiveness and efficiency of the mechanism (para. 31).

In order to facilitate the review at the COP-18, work will be conducted during this intersessional period to develop a methodology for the review of effectiveness, with indicators where appropriate. The review methodology will be considered by the Subsidiary Body on Implementation and adopted by COP.

## B. INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

### INTRODUCTION

The International Union for the Protection of New Varieties of Plants (UPOV) was established in 1961 by the International Convention for the Protection of New Varieties of Plants (UPOV Convention). The mission of UPOV is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. As of February 11, 2025, UPOV has 79 members (shown in green). Nineteen States and 1 intergovernmental organization have initiated the procedure for acceding to the UPOV Convention (shown in brown), and 28 States and one intergovernmental organization have been in contact with the Office of the Union for assistance in the development of laws based on the UPOV Convention (shown in orange):



The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of UPOV concerning the legal status of any country or territory.

Details are provided in the Annex to this report and in the list of UPOV members available at <http://www.upov.int/members/en/>.

The UPOV Convention provides the basis for members to encourage plant breeding by granting breeders of new plant varieties an intellectual property right: the breeder's right (see [http://www.upov.int/upovlex/en/upov\\_convention.html](http://www.upov.int/upovlex/en/upov_convention.html)).

The UPOV Convention specifies the acts that require the breeder's authorization in respect of the propagating material of a protected variety and, under certain conditions, in respect of the harvested material. UPOV members may also decide to extend protection to products made directly from harvested material, under certain conditions.

In order to obtain protection, the breeder needs to file individual applications with the authorities of UPOV members entrusted with the task of granting breeders' rights. The directory of the PVP Offices of the UPOV members is available at [http://www.upov.int/members/en/pvp\\_offices.html](http://www.upov.int/members/en/pvp_offices.html).

UPOV has developed UPOV PRISMA, an on-line tool to assist with plant variety protection (PVP) applications in participating UPOV members. At the time of this report, 37 UPOV members participated in UPOV PRISMA, including the European Union and the African Intellectual Property Organization. More information on UPOV PRISMA can be found at <https://www.upov.int/upovprisma/en/index.html>.

A State or intergovernmental organization that wishes to become a UPOV member needs to seek the advice of the UPOV Council in respect of the conformity of its laws with the provisions of UPOV Convention. This procedure leads to a high degree of harmony in those laws, thus facilitating cooperation between members in the implementation of the system. Guidance documents on how to develop legislation and become a UPOV member can be found at [http://www.upov.int/upov\\_collection/en/](http://www.upov.int/upov_collection/en/). The legislation of UPOV members can be consulted in UPOV Lex at <https://upovlex.upov.int/en/legislation>.

The main objectives of UPOV are, in accordance with the UPOV Convention, to:

- provide and develop the legal, administrative and technical basis for international cooperation in plant variety protection;
- assist States and organizations in the development of legislation and the implementation of an effective plant variety protection system; and
- enhance public awareness and understanding of the UPOV system of plant variety protection.

The effectiveness of the UPOV system of plant variety protection is enhanced by the provision of guidance and information materials such as Explanatory Notes (“UPOV/EXN” series), Information Documents (“UPOV/INF” series), the General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants, with its associated TGP documents, and the “Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability”. Such materials provide the basis for harmonization and, thereby, facilitate cooperation between UPOV members ([http://www.upov.int/upov\\_collection/en/](http://www.upov.int/upov_collection/en/)).

Further measures to support and enhance cooperation between members include the UPOV PRISMA PBR Application Tool (<http://www.upov.int/upovprisma/en/index.html>), information available in the PLUTO Plant Variety Database (<http://www.upov.int/pluto/en/>) and in the GENIE database (<http://www.upov.int/genie/en/>).

### III. UPOV AND PLANT GENETIC RESOURCES

UPOV considers that plant breeding is a fundamental aspect of the sustainable use and development of genetic resources. It is of the opinion that access to genetic resources is a key requirement for sustainable and substantial progress in plant breeding. The concept of the “breeder’s exemption” in the UPOV Convention, whereby acts done for the purpose of breeding other varieties are not subject to any restriction, reflects the view of UPOV that the worldwide community of breeders needs access to all forms of breeding material to sustain greatest progress in plant breeding and, thereby, to maximize the use of genetic resources for the benefit of society.<sup>1</sup>

Following consultations between the secretariats of CBD, ITPGRFA, the Office of the Union and the Consultative Committee (see background in document [CC/101/13 \(upov.int\)](http://www.upov.int/CC/101/13)), the Council, during its fifty-seventh ordinary session,<sup>2</sup> approved the following FAQ: “Complementarity between the UPOV

<sup>1</sup> See [http://www.upov.int/export/sites/upov/news/en/2003/pdf/cbd\\_response\\_oct232003.pdf](http://www.upov.int/export/sites/upov/news/en/2003/pdf/cbd_response_oct232003.pdf)

<sup>2</sup> Held in Geneva, on October 27, 2023.

Convention, the Convention on Biological Diversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)”.

The FAQ approved by the Council is published on the UPOV website [Frequently asked questions \(upov.int\)](https://www.upov.int).

The FAQ explains that “By encouraging the development of new varieties of plants, the UPOV system encourages the sustainable use of biodiversity while creating new genetic diversity. New plant varieties with improved yield, more efficient use of nutrients, resistance to plant pests and diseases, salt and drought tolerance and better adaptation to climatic stress, according to the needs and preferences of farmers and consumers, can sustainably increase productivity and product quality in agriculture, horticulture and forestry. These attributes can reduce the pressure on the natural environment and biodiversity by reducing the need for inputs while reducing the area of land needed for agriculture. Plant breeding sustainably uses biological diversity and relies on the conservation of biodiversity to develop new varieties that deliver substantial benefits for farmers and society as a whole. The critical importance of biodiversity to agriculture is recognized in the CBD and the Nagoya Protocol acknowledges the importance of genetic resources for food and agriculture and their special role for food security. The recognition of the importance of crop and genetic diversity for sustainable agriculture and food security is central to the objectives of the ITPGRFA.”

The following paragraphs report on some recent areas of cooperation between UPOV and Food and Agriculture Organization of the United Nations (FAO) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

#### Cooperation FAO and UPOV

The Office of the Union received the visit of Mr. Qu Dongyu, Director General of FAO, in Geneva, on May 28, 2024. Mr. Daren Tang, Secretary General of UPOV, chaired the meeting. Discussions took place on how the organizations could cooperate in relevant aspects of their work. It was agreed to explore co-operation in communication initiatives and training and assistance matters.

At the invitation of Mr. Marcelo Resende, representing the FAO in Nicaragua, the Vice-Secretary General of UPOV made a presentation during the Regional Technical Meeting of National Seed Authorities for Seed Systems Contribution to Food Security, which took place from November 11 to 13, 2024, in the city of Managua, Nicaragua.

#### Cooperation ITPGRFA and UPOV

The Office of the Union attended the Tenth Session of the Governing Body (GB) of the International Treaty on Plant Genetic Resources for Food and Agriculture, held from November 20 to 24, 2023, in Rome, Italy.

Relevant matters on cooperation of ITPGRFA and UPOV are reproduced below (see Resolution 14/2023):

- “9. Encourages the Secretary to continue collaborating with the UPOV Office on relevant matters, as appropriate;
- “10. Takes note of the status of UPOV’s FAQ on the interrelations between the International Treaty, the CBD and UPOV.”

## IV. GENERAL DEVELOPMENTS IN UPOV

### Situation in UPOV

#### New members

##### *Armenia*

Armenia deposited its instrument of accession to the UPOV Convention on February 2, 2024, and became the seventy-ninth UPOV member on March 2, 2024. Upon depositing the instrument of accession, H.E. Mr. Andranik Hovhannisyanyan, Ambassador and Permanent Representative of

Armenia in Geneva, stated, “Farmers and growers will gain access to new, high-quality plant varieties, adapted to climate change and designed for higher productivity, ensuring competitive production.” [More here.](#)

Examination of laws or draft laws

#### *Lao People’s Democratic Republic*

The Council of UPOV, on October 25, 2024, took a positive decision on the conformity of the “Law on Intellectual Property, Part IV New Plant Variety” with the 1991 Act of UPOV Convention, which allows Lao People’s Democratic Republic to deposit its instrument of accession to the 1991 Act.

#### *United Arab Emirates*

The Council of UPOV, on October 25, 2024, reaffirmed the decision on conformity of the “Draft Law on Plant Variety Protection of the United Arab Emirates” (“Draft Law”) with the 1991 Act of the UPOV Convention, which allows the United Arab Emirates, once the Draft Law is adopted with no changes and the Law is in force, to deposit its instrument of accession to the 1991 Act.

#### Development of new plant varieties

By encouraging the development of new varieties of plants, the UPOV system encourages the use of genetic resources for the benefit of society and adds to diversity.

A record number of 28,998 plant variety protection applications were filed in the UPOV members in 2023, representing a rise of 7% compared to 2022. The number of titles issued increased by 42% from 2022 to 21,088 in 2023.

From the establishment of UPOV to the end of 2023, more than 388,000 titles for new plant varieties had been issued by UPOV members. More than 195,000 of those titles are no longer in force, meaning those varieties can be grown without the breeder’s authorization.

For further consultation on the statistical information including historical totals and trends over the past five years, click here: <https://www.upov.int/>

#### Introducing the UPOV e-PVP system to help Streamline Plant Variety Protection

UPOV e-PVP offers a comprehensive set of digital tools to support UPOV members in effectively implementing the UPOV system of plant variety protection (PVP). These tools include:

- UPOV PRISMA: an online application tool for transmitting PVP application data directly to PVP offices. [UPOV/PRISMA](#)
- UPOV Plant Variety Database (PLUTO Database): A valuable resource offering detailed information on plant varieties and a similarity search tool for variety denominations. [upov.int/pluto/en/](https://upov.int/pluto/en/)
- [UPOV e-PVP](#) Administration Module: A fully digital system that allows PVP offices to manage applications, communicate with applicants, publish key information, and seamlessly transmit data to the UPOV Plant Variety Database.
- UPOV e-PVP DUS Report Exchange Module: A platform facilitating the exchange of DUS (Distinctness, Uniformity, and Stability) reports between PVP offices.

Together, these tools form the foundation for collaboration among UPOV members in the administration and examination of PVP applications, driving efficiency and enhancing cooperation.

#### UPOV International Certificate on Plant Variety Protection

UPOV has launched in 2024 the UPOV PVP Certificate program to promote the acquisition of knowledge and recognition of expertise, as well as opportunities for continuous learning on PVP matters.

The UPOV PVP Certificate provides international recognition of your knowledge and expertise in PVP matters. Holders of the UPOV PVP Certificate demonstrate to have followed a certain number of courses and contributed to activities concerning the UPOV Convention and its guidance, operation of a PVP Office and examination of applications, including DUS examination. For further information: [upov.int](http://upov.int)

#### [Trailblazing Plant Breeding: The Inspiring Story of Dr. Mary Mgonja](#)

From developing drought-tolerant sorghum varieties to licensing maize hybrids that benefit over 15,000 farmers, Dr. Mary Mgonja's work is transforming the landscape of plant variety protection and enhancing food security across Eastern and Southern Africa.

Dr. Mgonja's journey is a powerful reminder of how innovation and passion can make a tangible impact on farmers' lives. Read her full story: [MaryMgonjaStory/Upov](#)

#### [Viet Nam videos](#)

In 2024, UPOV published a series of videos on the benefits of plant variety protection for farmers, growers and society in Viet Nam:

- Smallholder ricer farmer: [https://www.youtube.com/watch?v=oV\\_3KC-cUtg](https://www.youtube.com/watch?v=oV_3KC-cUtg)
- Local growers: <https://www.youtube.com/watch?v=PeT-aEcMiZY>

**Longan farmer-breeder:** <https://www.youtube.com/watch?v=OHg1RE2Lnr4>

## C. UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

### **Climate change and genetic resources for food and agriculture:**

UNIDO project experience includes supporting indigenous agribusiness communities in Western Uganda to better adapt to the effects of climate change through the development and supply of clean tissue-culture banana plantlets. In total, UNIDO supplied 71,000 tissue-culture plantlets to 200 banana farmers in the eight project districts in Western Uganda, with an outreach to a total of 2,500 farmers are expected to benefit in the long-run.

UNIDO portfolio is also geared towards biodiversity friendly business ventures, establishing community-based gene banks to preserve and conserve genetic resources, and enhancing of community-based nurseries as reliable propagation and production sources to reduce dependency on expensive commercial seedlings, thereby addressing climate change needs.

### **Biodiversity for food and agriculture:**

UNIDO contributes to the Framework for Action on Biodiversity through action that drives sustainable use of biodiversity. Project example includes supporting production practices in biodiversity value chains under sustainability protocols. Another project example includes demonstrating the critical role that the effective management of marine and coastal ecosystems surrounding surf breaks can play in protecting biodiversity and ecosystem function.

#### D. ARAB CENTER FOR THE STUDIES OF ARID ZONES AND DRY LANDS

صُممت أهداف التنمية المستدامة السبعة عشر للأمم المتحدة لتحقيق التآزر بين رفاهية الإنسان والحفاظ على الموارد البيئية بحلول عام 2030، من خلال السعي إلى تحقيق 169 هدفًا وأكثر من 200 مؤشر (الأمم المتحدة . 2015 ) يشكل المحيط الحيوي الأساس لجميع أهداف التنمية المستدامة (فولك وآخرون 2016؛ روكستروم وسوخديف 2016؛ ليل فيلهو وآخرون 2018 ) ومع ذلك لا يزال الحفاظ على التنوع البيولوجي يمثل تحديًا عالميًا مستمرًا (تيتنسور وآخرون . 2014 ) إن دراسة كيفية مساهمة مجموعة معينة من الكائنات الحية ضمن الثروة العالمية للتنوع البيولوجي في تحقيق أهداف التنمية المستدامة لديها القدرة على ربط سياسة التنمية المستدامة بالحفاظ من خلال تصميم حلول متكاملة . هناك ترابطات بين النحل - وهي مجموعة أساسية من الحشرات ذات القيم الاقتصادية والاجتماعية والثقافية والبيئية المتنوعة - والناس، في سياق أهداف التنمية المستدامة

إن الانخفاض في أعداد النحل على مستوى العالم يهدد فوائد التلقيح لكل من الكوكب والبشر . وفي حين أن مساهمة تلقيح النحل في تعزيز أهداف التنمية المستدامة من خلال الأمن الغذائي والتنوع البيولوجي معترف بها على نطاق واسع، إلا أن مجموعة من الفوائد الأخرى التي يوفرها النحل لم يتم الاعتراف بها بالكامل بعد. نستكشف مساهمات النحل في تحقيق أهداف التنمية المستدامة للأمم المتحدة. تشير رؤيتنا إلى أن النحل يساهم بشكل محتمل في 15 من أهداف التنمية المستدامة السبعة عشر وما لا يقل عن 30 هدفًا من أهداف التنمية المستدامة.

(Ascher and Pickering) تضم النحل حوالي 20000 نوع موصوف عبر سبع عائلات معترف بها ، مع العديد من الأنواع الأخرى التي لم يتم وصفها بعد ( 2014 )

النحل ليس المجموعة الأكثر تنوعًا من الملقحات (تضم الفراشات والبعث أكثر من 140000 نوع)، إلا أنها المجموعة التصنيفية الأكثر هيمنة بين الملقحات ؛ فقط في المناطق القطبية الشمالية ، تكون مجموعة أخرى (الذباب) أكثر هيمنة . (Ollerton et al. 2017) إن قدرة النحل على نقل أعداد كبيرة من حبوب اللقاح على أجسامها المشعرة، والاعتماد على الموارد الزهرية، والطبيعة شبه الاجتماعية أو الاجتماعية الأوروبية لبعض الأنواع من بين الخصائص التي تجعل النحل ملقحًا مهمًا وفعالًا (أوليرتون وآخرون 2017؛ كلاين وآخرون . 2018 ) يتم إدارة خمسين نوعًا من النحل من قبل الناس ، منها حوالي 12 نوعًا يتم إدارتها لتلقيح المحاصيل (بوتس وآخرون 2016)



تم تسليط الضوء على الأهمية المحتملة للنحل في تلقيح المحاصيل كسبب معين للحفاظ على النحل البري 2018؛ كلاين وآخرون 2016؛ بوتس وآخرون 2016؛ جيل وآخرون 2007 وموائله (كلاين وآخرون ( يزور النحل أكثر من 90% من أفضل 107 محاصيل في العالم ؛ ومع ذلك، تمثل الأعشاب الملقحة 2007 بالرياح والذاتية حوالي 60% من إنتاج الغذاء العالمي . ولا تتطلب التلقيح الحيواني (كلاين وآخرون .

### حماية الملقحات الطبيعية :

وتتضمن الملقحات : النحل البري والخفافيش والفراشات والبعث أكثر من 140000 نوع والنحل الطنان وبعض أنواع الطيور .

- نشر العلوم والمعارف حول أهمية ودور الملقحات الطبيعية في الحفاظ على التنوع الحيوي من خلال الندوات الجماهيرية والأفلام التعريفية واستخدام وسائل التواصل الاجتماعي لنقل رسائل لجمهور العامة حول الأدوار التي تلعبها الملقحات الطبيعية وضرورة الحفاظ عليها
- نشر السياحة البيئية وتعريف زوار الغابات والمناطق الطبيعية بالملقحات الطبيعية وموائلها
- استصدار اللوائح والتشريعات للحد من استخدام المبيدات الحشرية الضارة بالملقحات وتشجيع استخدام المكافحة الحيوية للحشرات الضارة بالانتاج الزراعي
- صيانة وحفظ الموائل الطبيعية للملقحات وحفظها

### حماية الملقحات المدارة :

وتشمل النحل المستأنس وبعض أنواع النحل البري في الغابات التي يتم استثمار انتاجها من قبل البشر ويتم الحفاظ عليها من خلال :

- تأسيس الاتحادات والهيئات والمنظمات والجمعيات الشعبية التي تضم المربين والمهتمين بتربية النحل والتي تعمل على نشر ثقافة الحفاظ على النحل المدار وصيانة بيئة النحل البري المستثمر
- تشجيع نشر تربية النحل لأدواره المتعددة في الحفاظ على التنوع البيولوجي .
- نشر تربية النحل بين النساء الريفيات وجماهير الشباب وتدريبهم على ادارة مناخ نحل العسل في المناطق التي تعتمد على الموارد الطبيعية مصدرا للعيش .
- تشجيع الصناعة التي تشكل مواد ومستلزمات تربية النحل .
- التوسع بزراعة النباتات الطبية والعطرية

حماية التنوع الحيوي للحيوانات الزراعية وتشمل

الابقار المحلية : الابقار الشامية ، الابقار العكشية ، المهددة بالانقراض .

ابقار كنانة، ابقار البطانة ، والعديد من النيلية والابقار امبرورو وعديد من السلالات المحلية في الدول العربية

### سلالات الاغنام والماعز الدول العربية

الاعنام العواس و الاعنام الحميرية في السودان ، والاعنام العربية قطر وعديد من السلالات العربية الماعز الشامي ، الماعز الجبلي السوري ، الماعز النوبي ....

الابل العربية الابل الشامية ، العنابي والابل العربي ، وعديد من السلالات العربية وحيدة السنم لاغراض الانتاج .

**الجاموس** : جاموس الماء جاموس الغاب مهدد بالانقراض .

**الدجاج البلدي** ، استنباط سلالات محسنة من الدجاج البلدي يتمتع بصفات انتاجية ومقاوم للامراض ويصلح للتربية المنزلية ويؤدي دوري بيئي ومكافحة حيوية .

تربية السمن المحلي واعادة توزيع على المربين.

**الفاونا السمكية** : حماية الفاونا السمكية لنهر العاصي الذي تعرض للجفاف نتيجة قطع منبع النهر واستهلاك مياه للشرب، وذلك من خلال جمع الاسماك من نهر العاصي وحفظها واكثارها في محمية مائية ( تبلغ مساحتها نحو 2 هكتار) واعادة توزيعها على البحيرات الطبيعية باستعمال الطاقة المتجددة والاستفادة من الطبيعية ومكان تواجد البحيرة .

هذا من خلال:

- 1- الحفاظ على السلالات المحلية في الموقع عند المربين وتشجيع الاحتفاظ بالسلالات من خلال تحسين ظروف الانتاج وفتح اسواق خاصة بالمنتجات اعتمادا على الجودة ونوعية المنتج ( القيمة المضافة .
- 2- تحسين السلالات المحلية من خلال برامج تحسين وراثي بالانتخاب لتركيز الجينات الانتاجية والحفاظ على جينات المقاومة وتحمل الاجهادات الحرارية والغذائية وتقديمها للمربين كبديل عن السلالات التجارية .
- 3- الحفاظ على الموارد الوراثية من خلال التجميد ( اجنة مجمدة و قشاة مجمدة) تحسبا للكوارث الطبيعية والامراض الحيوانية و التلوث الوراثي المحتمل من خلال التهجين مع السلالات الاجنبية.
- 4- دراسة التراكيب الوراثية التوصيف الجيني لسلالات الاعنام العواس والماعز الشامي والماعز النوبي.
- 5- دراسة الموراثات الانتاجية ومورثات المقاومة للامراض ومورثات تحمل الحرارة في الماعز الشامي والماعز النوبي .
- 6- دراسة تعزيز الصمود تجاه التغيرات المناخية المتوقعة لدى المربين .

• الطاقة البديلة ، ادخال نموذج الطاقة البديلة والمتجددة في تربية الحيوانية والحفاظ على التنوع الحيوي والتخفيف من انبعاث الغازات الدفيئة من خلال الهواضم وانتاج الغاز الحيوي واستعمال في الحد من الاحتطاب وازلة الغابات والشجيرات الرعوية ( النظم البيئية

- ( واستعمال طاقة الشمس في العمليات الانتاجية سجب المياه لسقي الحيوانات في مناطق الرعي
- وتنمية المراعي واعادة النظم البيئية من خلال الاحزمة الخضراء.
  - دراسة الامراض الوبائية والنمذجة الرياضية لانتشار الامراض الحيوانية العابرة للحدود والتنبؤ بها ولاستجابة العاجلة.
  - انتاج سلالات مقاومة للامراض الحيوانية والتهابات الضرع واكثرها.
  - دراسات البدائل العلفية وتحسين قيمة المخلفات الزراعية (الزيتون، النخيل ، الموز...) لسد الفجوة العلفية وتعزيز الصمود لدى المربين للتغيرات المناخية.
  - دراسة الموازنة العلفية لتحديد الفجوات العلفية في عديد من الدول العربية.
  - رفع القدرات لدى المربين لزيادة المعرفة لمجابهة التحديات من التغيرات من المناخية.
  - ادخال تقنيات الذكاء الصناعي في زيادة الانتاج والانتاجية .
  - دراسة الاسواق وتحسين المنتجات والقيمة المضافة لدى المربين.

## E. CGIAR

### Introduction

This report has been prepared by CGIAR in response to an invitation from the Secretariat of the FAO Commission on Genetic Resources for Food and Agriculture. It is structured to correspond, in general, to agenda items 2-10 of the Twentieth Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA-20). Some sections of this report were previously included in the CGIAR submission to the Twelfth Session of the Intergovernmental Technical Working Group on Plant Genetic Resources (ITWG-PGRFA-12), in December 2024.<sup>1</sup> In the interest of keeping the document short, as requested by the Secretariat, where possible, we are providing links to on-line documents which include additional information that is relevant to agenda item under consideration.

### Cross-sectoral matters

#### Agenda item 2. The role of genetic resources for food and agriculture in mitigation of and adaptation to climate change

In 2023-24, by using artificial intelligence (AI), IRRI screened 60,000 rice samples for resilience to flooding.<sup>2</sup> This is three times more than were screened in the previous 52 years. It is part of a wider program to curate richer data and insight to help breeders, farmers and researchers make full use of CGIAR's unique collections.

ILRI, ICARDA and the Alliance of Bioversity and CIAT are conducting a project focusing on the development of productive, nutritive, drought tolerant and anti-methanogenic feedstock and their deployment for reducing enteric methane emission from livestock systems while maintaining or improving forage and animal productivity.<sup>3</sup>

ILRI, together with partners, is developing genomic resources for tropical forages (including napier grass, lablab, buffel grass, rhodes grass) that will accelerate development of adapted, high yielding varieties to enhance feed availability and food systems transformation in the global south.

IITA and ICARDA have developed heat and drought tolerant wheat varieties that have been released in eleven Africa countries; these varieties can be further multiplied and cultivated without attracting royalties.<sup>4</sup>

The AfricaRice genebank team, in collaboration with its scientists, conducted screening activities to identify accessions that are resistant or tolerant to various biotic and abiotic stresses, with the aim of integrating them into rice breeding programs. Among the numerous studies carried out, the evaluation of 530 *Oryza sativa* and 300 *Oryza glaberrima* accessions for salinity tolerance led to the identification of 10 *O. sativa* and 4 *O. glaberrima* accessions with high tolerance at the germination stage. Additionally, 336 *O. glaberrima* accessions were evaluated in Senegal for their tolerance to heat, cold, and anaerobic germination. Ongoing analyses aim to identify the best performing accessions. In parallel, phenotyping studies confirmed important agronomic traits. For instance, 36 *O. glaberrima* genotypes demonstrated high resistance to the African rice gall midge (AfRGM) in trials conducted in Nigeria and Burkina Faso. Furthermore, 30 accessions have confirmed resistance to rice yellow mottle virus (RYMV). Finally, 111 *O. glaberrima* accessions evaluated in Madagascar were studied for their tolerance to cold and resistance to rice blast (pyriculariose). While some showed sterility due to cold stress, a high level of resistance to rice blast was observed. These data, resulting from two years of characterization, are now available to the public, particularly to breeders, to enhance the use of genetic resources conserved in the AfricaRice genebank by users worldwide.

ICRISAT regional genebank in Niamey multiplied and distributed seed kits (5kg each) of promising accessions of pearl millet and sorghum to over 2800 households in Chad and Niger. The seeds were planted during the rainy season in 2023 by farmers. Participative evaluation conducted in both Niger

and Chad led to the selection of accessions that are adapted to climate, with high yield, and nutritious. It also led to increased pearl millet and sorghum production by two-fold in most of the beneficiary farmers' fields. ICRISAT, Hyderabad in collaboration with ICAR-NBPGR, genotyped over 5000 accessions of chickpea through resequencing, evaluated these for resistance to Fusarium wilt, Ascochyta blight, dry root rot, drought, heat and salinity tolerance. Tolerant/resistant sources have been identified for all the traits.

CIFOR-ICRAF Genebank has been instrumental in providing information and germplasm of a wide range of tree species for the implementation of restoration projects across Africa, such as [Regreening Africa](#),<sup>5</sup> and AFR100.<sup>6</sup> Restoration projects have several benefits that contribute directly and indirectly to climate change mitigation (e.g. increased carbon dioxide sinks) and adaptation (planting of resilient well adapted tree species). In 2023/24, CIFOR-ICRAF partnered with twelve countries in different restoration projects (Burkina Faso, DRC, Ethiopia, Gambia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, Somalia, Rwanda). Restoration projects have several benefits that contribute directly and indirectly to climate change mitigation (e.g. increased carbon dioxide sinks) and adaptation (planting of resilient well adapted tree species).

Building on 50 years of partnerships and the launch of its new strategy in 2024, ILRI has made significant strides in leveraging genetic resources for food and agriculture to address climate change challenges. Through initiatives like the [African Asian Dairy Genetic Gains \(AADGG\)](#) project, launched in Rwanda in 2024, ILRI is enhancing livestock resilience to climate stresses by using genetic data to identify the most productive and climate-resilient animals. In addition, The AADGG project's [real-time livestock monitoring app](#) enhances livestock productivity by supporting the selection of high-yielding, climate-resilient dairy genetics, which aids in adapting to climate change. By improving livestock management and efficiency, ILRI also contributes to mitigating climate impacts through reduced emissions and more sustainable farming practices.

The [Asian Chicken Genetics Gains \(AsCGG\) project](#), led by ILRI, has successfully improved smallholder poultry systems in Cambodia and Vietnam, demonstrating the potential of genetic resources to enhance climate resilience. With a grant from ACIAR, the project is expanding to the Pacific to strengthen poultry systems in Tonga, the Solomon Islands, and Samoa, enhancing climate adaptation and food security. ILRI launched the [Livestock and Climate Solutions Hub](#) to support low- and middle-income countries (LMICs) in transitioning to sustainable, low-emission livestock systems. The Hub brings together research, innovation, and partnerships to accelerate practical solutions that address the intertwined challenges of climate change and livestock production, with a focus on improving livestock genetics to enhance resilience and reduce environmental impacts.

The [ILRI EnviroCow project](#) is empowering small-scale dairy farmers across sub-Saharan Africa by providing access to cows that are better adapted to local conditions, thereby enhancing their income, lowering feed costs, and greenhouse gas (GHG) emissions. The project gathers data from over 700 cows to create tools for phenotyping and genetic selection, focusing on innovative animal traits like methane emission intensity, feed efficiency, milk yield, survival rate, and consistency of milk production. The project's aims are to select cows that are more efficient and productive and minimize their environmental footprint.

CGIAR contributes to the Agriculture Breakthrough Agenda that was launched at UNFCCC COP-26 in 2021, with 17 signatory countries having joined the Agenda since then. The Agriculture Breakthrough Agenda aims to make sustainable, climate-resilient agriculture the most attractive and widely adopted option for farmers globally by 2030.

CGIAR has led the development of the standalone 2024 Agriculture Breakthrough Report<sup>7</sup>, which focuses on reducing emissions, specifically in the two most impactful subsectors (i.e. livestock and fertilizer), while stressing that emissions reductions must not compromise food and nutrition security, particularly for the most vulnerable populations in the LMICs.

Additional information on CGIAR research and news related to climate change can be found on the Climate Adaptation & Mitigation Impact Area<sup>8</sup> of the CGIAR Research Initiatives.

### **Agenda item 3. Access and benefit-sharing for genetic resources for food and agriculture**

#### ***CGIAR contributions to international negotiations on access and benefit-sharing.***

CGIAR actively engaged as an observer throughout the two years of negotiations that led to the adoption, in November 2024, by the 16<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity, of ‘Decision 16/3: Digital Sequence Information’. Decision 16/3 operationalizes the multilateral mechanism for DSI benefit sharing that is part of the Kunming Montreal Global Biodiversity Framework. In parallel, CGIAR was also actively involved in the negotiations to enhance the functioning of the Plant Treaty’s multilateral system of access and benefit sharing. The Plant Treaty negotiations are scheduled to end in November 2025, with the Governing Body adopting a new package of measures.

The CGIAR Genebank Initiative coordinated CGIAR’s engagement in these processes, providing information about how genetic resources for food and agriculture and related DSI is being used in biological diversity conservation efforts, restoration programs, and crop and livestock improvement programs. We provided this information with the hope that it would help negotiators identify and adopt benefit sharing measures that simultaneously advance the objectives of the CBD and Plant Treaty and provide policy support for agricultural research and development. To this end, CGIAR convened side events for negotiators, participated in informal ‘off-the-record’ meetings with negotiators, developed written submissions to both negotiating fora, published peer reviewed papers analyzing benefit sharing options, convened webinars for negotiators and other stakeholders, and made presentations, at the invitation of the Co-chairs, to meetings of the Plant Treaty’s Ad Hoc Open-ended Working Group to Enhance the MLS.

More information about CGIAR’s contributions to DSI-related ABS negotiations are set out below under ‘Agenda Item 4’.

#### ***CGIAR compliance with access and benefit-sharing obligations***

In 2021, the CGIAR Genebank Initiative launched a series of trainings for CGIAR scientists to promote compliance with international, national and organizational-level ABS rules. A key feature of these trainings is a set of on-line training materials, which takes learners approximately 45 hours to work through, interspersed with live sessions with ABS experts from CGIAR, the CBD and Plant Treaty Secretariats, and other organizations. The training sessions are spread over the course of two months. The training materials were developed in partnership with the UK’s Open University. In 2024, the Genebank Initiative and Open University revised and broadened the scope of the online training materials to be potentially relevant to all scientists working in agricultural research and development organizations around the world (and not just scientists in CGIAR Centers). As of January 2025, the Genebank Initiative coordinated 5 editions of the course, with approximately 170 learners from CGIAR and national programmes.

As part of their implementation of the CGIAR Guiding Principles for the Management of Intellectual Assets, CGIAR Centers are required to file annual compliance reports with the CGIAR System Office. These reports require information from the Centers concerning their due diligence in complying with applicable ABS rules in the development of products which they subject to commercial licenses, or on rare occasion, applications for intellectual property protection. The Centers annual reports are considered by an independent System Council Intellectual Property group, which issues a report concerning its findings. All of these reports are [published on-line](#). They are also submitted to the Governing Body of the Plant Treaty.

The Genebank Initiative hosts a Genetic Resources Policy Helpdesk to provide assistance to CGIAR scientists who are uncertain about how to comply with ABS related issues.

### ***Supporting national implementation of the Plant Treaty's multilateral system of access and benefit-sharing***

Working in close collaboration with the Plant Treaty Secretariat, the CGIAR Genebank Initiative engaged in capacity sharing projects with partners in Uruguay, Guyana, Togo, Nigeria, Mauritius, Mali, Madagascar and Zimbabwe to develop measures to implement and operate under the Plant Treaty's multilateral system of access and benefit-sharing. Outcomes of those projects will be shared in the CGIAR report to the 11<sup>th</sup> Session of the Governing Body of the Plant Treaty in November 2025.

### **Agenda item 4. Digital Sequence Information and genetic resources for food and agriculture**

Following what was stated above under Agenda item 3, CGIAR's written submissions to the CBD and Plant Treaty bodies responsible for negotiating new DSI benefit sharing rules, related journal articles, and recordings of side events for negotiators and public webinars are available at '[Digital Sequence Information \(DSI\) and plant genetic resources](#)' (a webpage maintained by the CGIAR Genebank Initiative). We very much hope that interested delegates to the CGRFA 20 will visit this site.

Here, we choose to highlight two of the papers included on that site which were made available to delegates participating in negotiations under both the CBD and Plant Treaty:

- [\*Generation, use and sharing of digital sequence information in crop improvement.\*](#)  
Submission to the Twelfth Meeting of the Ad Hoc Open-Ended Working Group to Enhance the Functioning of the Multilateral System: Policy Brief (2024)
  
- [\*Technical assistance to strengthen national agricultural research organizations' capacity to use digital sequence information. A submission from CGIAR.\*](#)  
Submission to the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (2023)

### **Biodiversity for Food and Agriculture**

#### **Agenda item 5.2. Implementation of the Framework for Action on Biodiversity for Food and Agriculture**

The following paragraphs present examples of CGIAR Centers' contributions to the Framework for Action's 'Strategic Areas' from 2022-2024.

#### *Strategic Area 1 Characterization, assessment and monitoring of biodiversity for food and agriculture*

The Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR) is an open-source software platform with a web interface<sup>9</sup> and an Android App<sup>10</sup> that allow users to collect information about crop varieties, livestock breeds, and aquatic farmed-types that are present in (or absent from) a given geography, and to integrate this information into decision-making plans. After almost a decade of development, testing and refining, in 2022-2024, scientists from the Platform for Agrobiodiversity Research and the Alliance of Bioversity and CIAT, together with national partners, have deployed DATAR in six countries, in the context of four projects, generating and making available information

about around fifteen plant and animal species used in food and agriculture in around 20 different sites.

In the last years, CIFOR-ICRAF has developed and maintained the Priority Food Tree and Crop Food Composition database.<sup>11</sup> This database contains information on the composition of selected tree foods and crops with geographical focus on sub-Saharan Africa, and proposes portfolios of species for target geographies. The portfolios are combinations of indigenous/underutilized and exotic food tree and crop species that can potentially provide year-round nutritious foods to address harvest and nutrient gaps in local diets. To address certain “nutrient gaps” in a site, food tree species and others are mapped with food composition data. The database and the portfolios can also be used for dietary assessments, the development of education materials, the selection of nutritious species for agricultural domestication and breeding programs and many more activities. In the last two years, CIFOR-ICRAF has developed portfolios in Côte d'Ivoire, DR Congo, Ethiopia, Gambia, Ghana, Uganda and Zambia. Currently the database contains 132 foods (out of 99 species) and 30 components.

### *Strategic Area 2 Management of biodiversity for food and agriculture*

Promoting conservation and regenerative agriculture was at the core of several CGIAR Initiatives that were implemented by CGIAR Centers in 2023-2024, including the Initiatives on Agroecology, Excellence in Agronomy, Mixed Farmer Systems and Nature-positive Solutions. With support from Nature Positive Solutions, after decades of cooperation with national and international agricultural researchers, more than 165 farmers in Nyando district (Kenya) aggregated their land in 2024 to form two large farms of 32 and 10 hectares respectively. These farms are designed to embody permaculture principles in which farmers jointly design various aspects of the farm management in a wholistic and complementary manner. Activities include reducing cereal production and increasing vegetable production, establishing fishponds combined with irrigation systems, adopting agroforestry, and exploiting goods and services derived from apiculture and livestock production in crop management (e.g. pollination, soil fertilization).

Several bilateral projects led by CGIAR Centers have helped to advance integrated approaches to the management of biodiversity in agricultural systems. A good example is the project “Use of Conservation Agriculture in Crop-Livestock Systems in the Drylands for Enhanced Water Use Efficiency, Soil Fertility and Productivity (2018-2022)”, which was funded by IFAD and implemented by CIMMYT and ICARDA with national partners in four countries.<sup>12</sup>

CGIAR Centers have championed efforts to understand and document the importance of semi-natural ecosystems in agricultural systems and food production and then promote the protection and restoration of such ecosystems. For example, in 2023, scientists from the International Water Management Institute published a report exploring the role of mangrove forests in agriculture and food systems as carbon-trapping ecosystems, sources of food, and buffer areas contributing to communities’ resilience to climate change effects. The report reviews the literature on mangrove afforestation programs globally to identify the enablers and drivers of scaling and draws lessons on the factors required for successful mangrove restoration programs.<sup>13</sup> CGIAR Centers have also dedicated increased resources to research studies and development projects for the sustainable management of rangelands in humid and arid tropical areas.<sup>14</sup>

CIFOR-ICRAF collaborated in the development of the [Global Biodiversity Standard](#) that was launched at the 16<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity. The Global Biodiversity Standard provides assurance that tree planting, habitat restoration and agroforestry practices are protecting and restoring biodiversity. This monitoring and certification system seeks to ensure that tree planting programmes do not cause harm to ecosystems, but contribute to improve their diversity. The Standard combines the expertise of the global biodiversity community with the knowledge of local communities.<sup>15</sup>



Soil composition has been on the agenda of CGIAR Centers over the last decades. In recent years, however, soil health and soil microbial diversity have become hot topics for most of them. Activities related to these topics range from developing, testing and disseminating innovative and cost-effective methods for measuring and monitoring soil health<sup>16</sup>, to organizing workshops and trainings on soil management and conservation practices with farmers, publishing and disseminating guidelines and manuals,<sup>17</sup> and coordinating interventions in degraded environments for the restoration of soil health.

### *Strategic Area 3 Institutional frameworks for biodiversity for food and agriculture*

The Sustainable Rangeland Management Project (funded by IFAD and implemented by ILRI in 2016-2020) contributed to institutional changes enabling the sustainable management of agrobiodiversity. In Kiteto district, Tanzania, the project was instrumental in securing the communal grazing rights of (mostly) Maasai communities beyond their own villages' boundaries. Joint village land use planning, participatory rangeland management and the creation of livestock keepers' associations led to joint grazing land agreements that clarified and secured the communities' rights over almost 100,000 hectares of grazing land. Some years after the finalization of this project, the secured tenure rights have led to increased investments in rangelands' restoration by the communities themselves, with technical support from NGOs and CGIAR Centers. Conflicts between the villages' members, which were common before the project, have become rare. Joint village land use planning was integrated in Tanzania's government's manual of [Tools and Spatial Technologies for Village Land Use Planning in 2018](#), the National Land Use Framework 2013-2033, and the National Land Use Planning Commission's Guidelines for Village Land Use Planning.

At a much broader scale, CGIAR contributed to raise the profile of biodiversity for food and agriculture at the Sixteen Conference of the Parties to the Convention on Biological Diversity (CBD COP16). With more than 150 CGIAR scientists present at the COP16, CGIAR Centers organized over 36 events at the CGIAR Food and Agriculture Pavilion and contributed to more than 200 events arranged by other organizations, including several panel discussions during the Food Day co-organized by the CBD Secretariat, the FAO, the Colombian Presidency of COP16 and the Ministry of Agriculture of Colombia. The Seeds for the Future genebank at the Cali campus of the Alliance of Bioversity and CIAT hosted multiple events and guided visits that helped raise awareness of the importance of agricultural biodiversity and genetic resources for food and agriculture among CBD negotiators and other stakeholders.

## **Animal genetic resources**

### **Agenda item 7.2 Implementation of the Global Plan of Action for Animal Genetic Resources**

ICARDA and ILRI have contributed to the four strategic priority areas of the Global Plan of Action for Animal Genetic Resources as follows:

#### *Strategic Priority Area 1 Characterization, Inventory and Monitoring of Trends and Associated Risks*

ICARDA has developed and applied an approach that combines geo-informatics, geo-visualization, eco-climatic data and breed information to generate livestock environment suitability maps. The approach was tested using four Ethiopian sheep and two goat breeds. These were matched to environments in which they can attain their best adaptive, production and reproduction performance thus ensuring long-term sustainability.

Using cutting-edge genomic techniques, ICARDA and national partners have investigated genomic diversity and variation in dryland livestock species e.g., sheep from across North Africa. This work has unraveled genomic regions and genes encoding traits of economic value (e.g., fecundity), resistance to endo-parasites (e.g., intestinal worms), resistance to ecto-parasites (e.g., ticks) and adaptation to eco-climatic stress (e.g., heat stress).

ILRI has developed and tested a method that combines ecological niche modelling with genomics to delineate ecotypes based on environmental characterization of population habitats and unravel the signatures of adaptive selection in the ecotype genomes. This integrated approach offers a powerful tool to gain insight into the complex processes of adaptive evolution including the genotype by environment interactions.<sup>18</sup>

ILRI maintains a Domestic Animal Genetic Resource Information System (DAGRIS) which provides data based on scientific information published in specialized literature. This database is complementary to the Domestic Animal Diversity Information System (DAD-IS) maintained by FAO, which is constructed primarily with information provided by the National Coordinators of DAD-IS. ILRI interacts closely with DAD-IS while developing DAGRIS.

### *Strategic Priority Area 2: Sustainable Use and Development*

ICARDA's design and implementation of Community-Based Breeding Programs (CBBPs) for local sheep and goat breeds in many parts of the world including sub-Saharan Africa, Asia, Middle East and North Africa underscores the strategic importance of harnessing indigenous genetic resources for the sustainable use and development of animal genetic resources. CBBPs establish functional breeding frameworks for local breeds in low-input systems that include animal identification, performance recording, and selection based on estimated breeding values. Central to these programs is community participation, with structured participatory selection processes, and a breeding sire sharing and utilization scheme. CBBPs improve productivity, resilience, and overall sustainability of livestock systems. The extensive data collected through CBBPs is also utilized to quantify greenhouse gas (GHG) emissions and identify climate adaptation traits for future integration into selection indices, fostering the development of more resilient and productive breeds.

ILRI has continued to deploy modern genomic technologies to identify livestock breeds and crossbreeds, traits and genes adapted to specific environments.<sup>19</sup>

### *Strategic Priority Area 3: Conservation*

In recent years, ICARDA has collaborated with farmers' organizations and the Tunisia national genetic improvement center to conserve two sheep breeds -- Sicilo-Sarde and Noire de Thibar – in the north of the country. These breeds share a common history and are both suffering in recent decades, from reduction in population and in genetic diversity. ICARDA works with Tunisian partners to build-up sustainable breeding schemes that preserve genetic diversity and improve the incomes of keepers of the two breeds. ICARDA is working with partners to develop and share knowledge related to identifying breeding objectives, data flow and analysis, and field reproductive solutions.

In recent years, researchers from ILRI and the Centre for Tropical Livestock Genetics and Health (CTLGH) at the Roslin Institute (University of Edinburgh) have developed, refined and tested an innovative method to preserve the biodiversity of African poultry breeds. This method addresses the challenges associated with conserving avian genetic material through cryopreservation. The method includes the development and use of chickens that are devoid of their own sperm or eggs as recipients of primordial germ cells (PGCs) of the breeds that need to be conserved. Such germ cells can be conserved in cryopreservation facilities in biobanks. With the introduction of the PGCs into the growing 'sterile' chick, the chick then develops into a fertile animal, but only produces gametes (egg or sperm) that are genetically those of the donor chicken breed. This process allows restoration of indigenous chicken breeds from biobanked material in a manner that supports the 3Rs principle in animal experimentation —Reduction, Refinement, Replacement. The lab-based techniques developed as part of this innovation are transferable to partner institutions, thereby enabling countries across Africa to adopt chicken genetic resource biobanking.<sup>20</sup>

The Centre for Tropical Livestock Genetic and Health (CTLGH) and ILRI, are supporting national partners from Africa and South East Asia to conserve their local poultry genetic resources. The CTLGH/ILRI reproductive lab team continues to make significant strides in advancing chicken biobanking and promoting the conservation of poultry genetic resources. Here are some of their main achievements:

- Kenya: Successfully biobanked 1,103 gonads from diverse chicken ecotypes. These samples represent all regions of the country, except the North Eastern region.
- Uganda: Biobanked 336 gonads from various ecotypes across all regions.
- Burkina Faso: Biobanked 42 gonads from chickens and 58 gonads from guinea fowl, covering ecotypes across all regions.

In addition, various stakeholder groups from East and West Africa were trained on PGC technology for chicken genetics conservation. Participants included representatives from Burundi, Rwanda, Tanzania, Ethiopia, Cameroon, and Burkina Faso, equipping them with the knowledge and skills to adopt and apply this cutting-edge technology in their respective countries.

Future plans include expanding biobanking and capacity-building initiatives to other regions across Africa and South East Asia. This expansion will enable ILRI and CTLGH and national partners to preserve a broader range of genetic diversity and strengthen conservation efforts across those regions.

FAO, the African Union's Inter-African Bureau for Animal Resources (AU-IBAR), ILRI and the CTLGH have organized three regional webinars (South East Asia, East Africa, Southern Africa) on the conservation of animal genetic resources using stem cell technologies, where the partners shared with participants the FAO practical guides on *Practical guide Innovations in cryoconservation of animal genetic resources* and *Genomic characterization of animal genetic resources*.

#### *Strategic Priority Area 4: Policies, Institutions, and Capacity-Building*

ICARDA's efforts under this Strategic Priority Area focus on strengthening policies, institutions, and capacity-building to support the sustainable development of livestock breeding programs. More than 35 university and research partners in Ethiopia, and other countries, including Mali, Tunisia, Cameroon Malawi, and Burkina Faso, have been capacitated to establish and manage Community-Based Breeding Programs (CBBPs). In Ethiopia, the Ministry of Agriculture has adopted the CBBP approach within its Red Meat Strategy<sup>21</sup> and in various World Bank development programs, such as the Lowlands Livelihood Resilience Project and the Livestock and Fisheries Sector Development Project. Additionally, ICARDA developed and delivered a comprehensive training manual to the Ethiopian MoA, designed to assist extension experts in scaling and implementing CBBPs effectively, further embedding this approach in national agricultural development strategies.<sup>22</sup>

Researchers from ICARDA, ILRI and various national research organizations have proposed a framework that can help with the dissemination of the improved genetics produced in current CBBPs to enable wide economic impact. This framework proposes the establishment of a genetic improvement structure that supports a meat commercialization model based on the integration of community-based breeding program cooperatives, client communities and complementary services such as fattening enterprises.<sup>23</sup>

#### **Agenda item 7.3 Status of preparations of The Third Report on the State of the World's Animal Genetic Resources for Food and Agriculture**

A geneticist from ICARDA worked with a team from the University of Natural Resources and Life Sciences (BOKU, Vienna), to write a sub-chapter entitled "Genomic assessment of genetic variation

and the future of the breed concept" which was included in The Third Report on the State of the World's Animal Genetic Resources for Food and Agriculture. To support development of this sub-chapter, ICARDA helped organize a survey to collate information from livestock industry stakeholders; the results were presented in a workshop. Through a key person interview, ICARDA's small ruminant breeders supported a team from INRAE to include information on the development and implementation of Community Based Breeding Programs in a sub-chapter on breeding programs for challenging environments.

## **Plant genetic resources**

### **Agenda item 9.3 Implementation and review of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture**

CGIAR's report to ITWG-PGR12 included extensive information about CGIAR Centers' activities that have contributed to the Second Global Plan of Action for PGRFA. To follow the Secretariat's request to keep this report very short, we are providing a link to the CGIAR Report to the ITWG-PGR12<sup>24</sup> rather than repeat the related text here. That linked-to report includes information concerning CGIAR's contributions to:

- *In situ* conservation and on-farm management of PGRFA
- *Ex situ* conservation of PGRFA, including:
  - Details of holdings and acquisitions of PGRFA by CGIAR Centers' genebanks
  - distributions by CGIAR Centers' genebanks and breeding programs
  - efforts to add value to CGIAR collections, manage them more efficiently, and increase their use

Sustainable use of PGRFA, including examples of CGIAR work on plant genetic resource characterization, pre-breeding and breeding.

With respect to *ex situ* conservation in particular, we include CGIAR system-wide aggregate figures about total collection holdings and distributions: In total, as of December 2023 the eleven CGIAR genebanks that signed agreements with the Governing Body of the Plant Treaty conserved close to 712,000 accessions in the form of seeds, tissue culture, tubers, cryopreserved samples, trees and plants in the field and greenhouse which are available using the Plant Treaty's standard material transfer agreement (SMTA).<sup>25</sup> During the first 17 years of operations under the Plant Treaty's framework, the CGIAR Centers distributed over 6 million samples of PGRFA with more than 63 thousand SMTAs.<sup>26</sup> The majority of these PGRFA (75 to 80 percent) were improved materials from the Centers' breeding programs. While it varied from year to year, the remaining 20 to 25 percent were from the genebanks. Details related to particular Centers, crops, and recipient countries and regions are provided in our report to the ITWG-PGR 12.

The following information concerning CGIAR's contributions to the 2nd Global Plan's Priority Area D: 'Building Sustainable Institutional and Human Capacities' was not included in our report to the ITWG-PGR 12:

- In 2024, under the framework of the CGIAR Genebank Initiative, CGIAR Centers organized regional training workshops including the following

- ‘2nd African Regional Workshop: Optimizing Genebank Operations: Advanced Seed Processing and Data Curation’, 24-28 June 2024, Nairobi (co-organized by Alliance for Bioversity and CIAT, AfricaRice, IITA, ILRI, ICRAF and ICRISAT, with participants from 15 countries).
- ‘Improving Genebank Operations and Data Curation’, 23-27 September 2024, Hyderabad (Co-organized by ICRISAT, IRRI, the Alliance of Bioversity and CIAT and the World Vegetable Center, with participants from 17 countries)
- ‘Genetic Resources Conservation and Use Training Course Agenda, December 11-17, 2024’, Tashkent (co-organized by ICARDA, with participants from 14 countries)
- ‘CGIAR Cryo Workshop’ 2-6 December 2024, Lima (Organized by CIP with Alliance of Bioversity International and CIAT, IITA, ICRAF and ICRISAT and World Vegetable Center)
- ‘VII Taller de la Comunidad de Práctica para América Latina y el Caribe’, 9-13 December 2024, Lima (Co-organized by CIMMYT, CIAT and CIP, with participants from 15 countries)
- CGIAR scientists (from the Alliance of Bioversity and CIAT) collaborated with government officials, national scientists, the ITPGRFA Secretariat and others to support Colombia’s ratification of the ITPGRFA by Colombia. The ratification process culminated in the passage of Law 2285 in January 2023, followed by constitutional approval in September 2023.<sup>27</sup>

Four Centers participated in the review of the Second Global Plan of Action hosting and participating in regional consultations: In May 2024, the Alliance of Bioversity and CIAT hosted the regional consultation for Latin America and the Caribbean in Cali, Colombia; ICRAF-CIFOR hosted the regional consultation for Africa, in Nairobi, Kenya. In addition, experts from ICRISAT participated in the Regional Consultation for Asia-Pacific, which took place in July 2024, in Bangkok, Thailand.

#### **Agenda item 9.4 Effects of seed policies, laws and regulations**

In 2023-2024, seed system experts from the CGIAR Genebank Initiative partnered with the European Cooperative Programme for Plant Genetic Resources (ECPGR), Rete Semi Rurali, Fundación Entre Tantos, Arche Noah and Pro Specie Rara to raise awareness and gather views about the reform of the European Union (EU) law on the marketing of plant reproductive material. These organizations organized two webinars and several consultations. Together, they prepared a letter calling for amendments in the draft new EU Regulation to address the risk that it would negatively affect the transfer of samples of PGRFA by genebanks and other *ex situ* collections for the purposes of breeding, training, conservation and repatriation. Thanks to this letter, which was signed by genebank managers and PGRFA researchers from 23 EU countries, and other actions taken by the European plant genetic resources community, provisions which had the potential to interfere in *ex situ* collections’ mandates and activities were removed from the draft regulation. In this way, the possibility that the new EU law became an undesirable precedent for other countries and regions was also avoided.

Recent work of the Alliance of Bioversity and CIAT in collaboration with the National Tree Seed Center in Burkina Faso included a large-scale survey of small tree nurseries in 8 regions of the country to assess the diversity of species that those nurseries handle, their technical standards and familiarity with the country-level regulations in the seed sector.<sup>28</sup> One of the outputs of this work was an updated seed catalogue from the National Tree Seed Center.<sup>29</sup>

In Kenya, experts from IFPRI and the Alliance of Bioversity and CIAT collaborated with national organizations and authorities to support discussions about new regulations for the registration of farmer varieties of vegetatively propagated crops (VPS). In November 2024, “The Seeds and Plant Varieties (Vegetatively Propagated Seeds) Regulations, 2024,” under “The Seeds and Plant Varieties

Act (Cap. 326)” were finalized allowing for the registration of farmer varieties of VPS crops, and the production of seed and propagating materials through Quality Declared Seeds (QDS).

The Alliance of Bioversity and CIAT continued to work with the University of Juba, in collaboration with the Ministry of Agriculture and Food Security (MAFS), and the Directorate of Agricultural Research in South Sudan, along with Wageningen University and UN FAO, to support the evolution of the ‘Seed Hub’ linked to the National Seed Policy and a National Seed Act. The terms of reference for the Seed Hub (governance, management and operations), information about partners, and ongoing activities are available on the South Sudan Seed Hub website (<https://www.southsudaseedhub.com/>).<sup>30</sup>

Based on its seed system work in a number countries over recent years, IFPRI has developed Regulatory Systems Maps (RSMs) which can be used to analyze legal and regulatory processes and procedures and to compare seed sector performance across crops, countries, and markets. RSMs can be applied to several aspects of a given seed sector, e.g., (i) varietal registration and release processes, (ii) early generation seed production and distribution, (iii) seed quality assurance systems, and (iv) international and regional seed trade. RSMs provide descriptions, analyses, and illustrations that identify intervention points, legal and regulatory reform options, best-fit practices, and other institutional innovations. They also provide a means of integrating issues such as gender, inclusion, and equity into seed policy change processes.<sup>31</sup>

## Forest genetic resources

### Agenda item 10.2 The Second Report on the State of the World’s Forest Genetic Resources

The Alliance of Bioversity and CIAT and CIFOR-ICRAF participated in the development of the Second State of World Forest Genetic Resources Report. Scientists from CIFOR-ICRAF led Chapters 3 (*State of Woodland and Agroforestry Systems*) and 7 (*Ex situ Conservation of Forest Genetic Resources*), while scientists from the Alliance of Bioversity and CIAT led Chapter 1 (*In situ Conservation of Forest Genetic Resources*). These chapters are currently being edited.

### Agenda item 10.3 Implementation and review of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources

CIFOR-ICRAF continued to promote the conservation and use of tree genetic resources through establishing breeding seed orchards and mother tree blocks with national and international partners. These orchards and blocks are important components of strong tree seed and seedling systems; they act as supply centers of improved tree material (vegetative and reproductive propagules) in their respective regions. By providing multipurpose tree species to nurseries, farmers, universities, NGOs, and private partners, ultimately, they help to diversify the tree cover on farm and provide economic, nutritional, and ecological benefits. Diversified portfolios of trees will also provide experimental material for downstream tree improvement and breeding.

In the last two years, the Alliance of Bioversity International, in collaboration with international and national partners, continued the development, testing and deployment of various tools for the conservation, use and restoration of forest genetic resources:

- The *D4R tool* ([DiversityForRestoration](#)) was introduced for use in several new countries. It is currently used in 20 countries across South America, Central America, South Asia, South East Asia, Middle-East, Sub-Saharan Africa. For each country, priority species lists have been developed, suitability maps for priority species have been generated and species characterizations through functional traits have been conducted.

- The *MyFarmTrees tool* ([My Farm Trees](#)) was released and piloted in Kenya and Cameroon and preliminarily tested also in Ethiopia, Laos and Vietnam. My Farm Trees empowers restoration for resilience and provides a platform to promote tree cover using native trees, and includes documentation, verification and quality control. It uses blockchain to create a transparent link of information from seed collection to tree growth – to improve livelihoods, food security and climate mitigation.
- The *CacaoDiversity tool* ([CacaoDiversity](#)) has been developed to provide location-specific information about how to improve sustainability of cacao farms in South America. The tool provides information about the probable future impacts of climate change on cacao cultivation and guides users to select appropriate propagation material for climate change adaptation. The tool also includes information on the likely cadmium content in soil and cacao beans, and more features are expected to be included.

The Alliance of Bioversity and CIAT also developed an online course entitled *Planning seed and seedling supply for forest and landscape restoration*, which is available through the FAO e-learning Academy.<sup>32</sup> It also worked with national partners in the Philippines (i.e. Mindanao Forest Tree Seed Center and the College of Forestry and Natural Resources of the University of the Philippines) and Indonesia (National Research and Innovation Agency and Ministry of Environment and Forest) to develop national digital information systems on forest tree seed, including seed collection and distribution.

The Asia-Pacific Forest Genetic Resources Programme (APFORGEN), with the support of the Alliance of Bioversity and CIAT, developed an updated regional strategy (2023-2030) to support the implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources (GPA-FGR) in the region,<sup>33</sup> and presented it to the Asia-Pacific Regional Forestry Commission. During the previous strategy period (2018-2022), APFORGEN raised nearly US\$1.5 million to support the GPA-FGR implementation through multi-country projects.<sup>34</sup>

## F. GLOBAL CROP DIVERSITY TRUST<sup>3</sup>

Established in 2004 as an independent international organization, the Global Crop Diversity Trust (Crop Trust) operates from Bonn, Germany within the framework of the International Treaty on Plant Genetic Resources for Food and Agriculture (the Treaty), in accordance with the overall policy guidance provided by the Governing Body (GB) of the Treaty. The Crop Trust's objective, as stated in its Constitution, is "to ensure the long-term conservation and availability of plant genetic resources for food and agriculture with a view to achieving global food security and sustainable agriculture." The Crop Trust is pleased to present this report to the Twelfth Session of the Intergovernmental Technical Working Group on PGRFA.

### SCIENTIFIC AND TECHNICAL MATTERS

#### A. Long-term conservation and availability of PGRFA

##### *Support to Article 15 Genebanks*

At the core of the Crop Trust is the Endowment Fund, created to provide financial security to globally important collections of crop diversity in perpetuity. To date, the Executive Board has approved long-term funding from the Endowment Fund for the essential operations of nine CGIAR genebanks, the genebank of CePaCT, and also the genebank of WorldVeg, all of which conserve collections which are available in the Multilateral System of the Plant Treaty. The Executive Board also approved transition funding for CIFOR-ICRAF from 2022 to 2024. These international collections play a crucial part in the development and implementation of a rational, efficient and effective global system for ex situ conservation of crop diversity.

This long-term funding is supporting the conservation and availability of more than 20 crops in 10 locations across five continents in the CGIAR genebanks<sup>4</sup>. The support covers essential operations almost fully in the case of rice at the International Rice Research Institute (IRRI) in the Philippines, beans and forages at the Alliance of Biodiversity International & CIAT in Colombia, and the seed collection at the International Institute for Tropical Agriculture (IITA) in Nigeria. It covers essential operations to a more limited extent for the other genebanks.

In addition to long-term funding from the Endowment Fund, the Crop Trust has raised bilateral funding to supplement its long-term commitments. In collaboration with the Plant Treaty, we established a Joint Funding Facility to provide support to Article 15 genebanks not part of the One-CGIAR system, to mobilize resources for international genebanks in need of predictable funding during a period of transition. With support from the German Corporation for International Cooperation (GIZ) and the Government of Norway (via Norad), the Crop Trust and Plant Treaty thus secured transitional support for the essential operations of the genebanks of WorldAgroforestry (CIFOR-ICRAF), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) and WorldVeg for the period 2024-2025. There will be a meeting of non-CGIAR Article 15 genebanks in late 2024 to coordinate activities, jointly organized with the Plant Treaty Secretariat.

The Crop Trust has joined with the Plant Treaty Secretariat to support the rejuvenation of the Article 15 coffee collection maintained by CATIE in Costa Rica. Based on the recommendations of the global coffee conservation strategy, and a follow-up detailed accession-by-accession study funded by Felco SA, the collection is being moved to a new, better field site at CATIE, while making sure that all accessions are represented by adequate numbers of trees and are fully documented. This work started

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<sup>3</sup> Originally submitted for information of the Twelfth Session of the Commission's Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture, held in Rome, Italy, from 10 to 12 December 2024 (CGRFA/WG-PGR-12/24/7/Inf.1).

<sup>4</sup> <https://www.cgiar.org/initiative/genebanks/?section=about>



with the most at-risk accessions. During May 2022 to May 2023, 168 coffee accessions were identified as priorities, and 6 samples of each, totalling 1,008 plants, were grafted to rootstocks and transplanted to a new field site. The second phase of the project started in 2024 with funding from GIZ through the Joint Funding Facility. As part of this phase, an additional 2,400 plants representing 400 accessions will be transplanted in the new site.

Total long-term funding from the Endowment Fund plus bilateral support to international genebanks amount to over USD 76 million since 2006.

#### *Support to national genebanks*

**BOLD Project.** The Biodiversity for Opportunities, Livelihoods and Development<sup>5</sup> (BOLD) Project was officially launched in June 2021. This 10-year initiative is funded by the Government of Norway (via Norad). BOLD is coordinated by the Crop Trust in close partnership with the Norwegian University of Life Sciences (NMBU), and with the participation of NordGen and the Plant Treaty Secretariat. BOLD receives advice from a panel of experts, which includes the Plant Treaty Secretariat and the Seeds and PGR Unit of FAO. The project is divided into the following areas of work.

Capacity and Resource Development. This element of the project is strengthening the capacity of genebanks in 15 partner countries (Azerbaijan, Bhutan, Cuba, Ecuador, Egypt, Laos, Lebanon, Morocco, Pakistan, Peru, Sudan, Tanzania, Uganda, Vietnam, Yemen) to manage, document, conserve and duplicate crop diversity and make it available to farmers and breeders. External reviews of partner genebanks were completed in 2022, which resulted in plans for: (1) upgrading facilities and equipment; (2) training staff on genebank operations and policies; (3) implementing genebank data and quality management systems; and (4) identifying and making available useful diversity. Project agreements were thereafter signed with 13 genebanks (Azerbaijan, Ecuador, Egypt, Laos, Lebanon, Morocco, Pakistan, Sudan, Tanzania, Uganda, Vietnam, Yemen, and Bhutan). In 2023, 76 genebank staff from 15 national genebanks were trained in basic genebank operations and 16 staff from 10 genebanks enrolled in three online courses on plant genetic resources conservation and use. Capacity development included 13 webinars (seven on quality management system, QMS, and four on Genesys), two IT workshops (Uruguay, Azerbaijan), and five QMS intensive visits (Ecuador, Azerbaijan, Pakistan, Morocco, Uganda). QMS intensive visits and IT workshops continued in other countries in 2024. In addition, three agreements are underway with CGIAR Centres (ICARDA, CIP, and IRRI) on capacity development and knowledge exchange with the national genebanks. The work of the Emergency Reserve for Genebanks, and the emergency support for Ukraine are described in a separate document of the Treaty Secretariat.

Making New Diversity Available. This component facilitates the development and use of new diversity of selected crops by breeders and farmers for climate change adaptation and food security in 20 partner countries. It includes on-farm trials and other participatory approaches to ensure a more effective flow of novel crop diversity to farmers. Seven project agreements were signed in 2022 and continued during 2023. Six of the projects are pre-breeding and participatory evaluation projects that focus on (1) alfalfa, (2) barley and durum wheat, (3) finger millet, (4) grasspea, (5) potato and (6) rice. The seventh project is using state-of-the-art informatics to share and analyze all data generated in the pre-breeding and evaluation projects. Since 2021, six crop wild relative-derived durum wheat varieties<sup>6</sup> have been released (in Morocco, Syria, Iran) and one late-blight resistant potato variety<sup>7</sup> adapted to the high Andes (in Peru).

Genebanks and Seed Systems. This work package comprises a research programme led by NMBU to explore different, complementary ways of enabling crop diversity to be more readily accessible to farmers. Models for strengthening the connections between genebanks and national seed systems are

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<sup>5</sup> <https://bold.croptrust.org/>

<sup>6</sup> <https://www.icarda.org/media/blog/new-drought-tolerant-crops-resilient-dryland-livelihoods>

<sup>7</sup> <https://cipotato.org/annualreport2022/inclusive-food-systems-for-resilience/meet-cip-matilde/>

being documented and developed. Innovative pilot efforts by national genebanks in four partner countries will then be supported to actively contribute diversity to national and regional seed systems as examples for other national programs to adopt or adapt, as appropriate. Project launch workshops were held in Uganda, Ecuador, Bhutan and Tanzania with research partners and a wide range of stakeholders. NMBU and its partners co-developed the Genebank and Seed Systems toolkit,<sup>8</sup> comprising a methodological framework and data collection tools. The toolkit was pre-tested in selected communities in Uganda and Ecuador and finalized according to the feedback received. It subsequently underwent an ethical review and has now been published after incorporating all feedback and testing it in the remaining countries (Bhutan and Tanzania). Project launch workshops were conducted in all 4 countries with partners and other collaborators. Research teams were trained on different themes and data analysis workshops were held in Uganda and Ecuador. Roundtable workshops to validate seed system assessment findings have been held in all four countries. Good progress has been made towards preparing the final seed system assessment reports. The report for Uganda is already completed and published on the NMBU website.<sup>9</sup> These reports will inform the development of pilot projects for strengthening linkages between genebanks and seed systems.

A wide array of outreach activities were carried out, reaching academic, government, and civil society audiences, including the postgraduate course ‘Smallholder Engagement in Seed Systems: From Field Practice to Science’<sup>10</sup> at Wageningen University & Research, and lectures at various events. An article on the development of resilient and inclusive seed systems for farmers was published<sup>11</sup>. Additionally, a paper on the conceptual framework developed for the BOLD WP3 project was published by the NMBU team.<sup>12</sup>

Regeneration and Safety Duplication at the SGSV. Having launched a call for proposals in late 2021 in coordination with the Plant Treaty Secretariat, eligible partners were selected after two rounds of reviews. In early 2022, negotiations commenced for 53 selected proposals and agreements were signed with 42 partners from 30 ODA countries. These agreements cover 41,146 accessions earmarked for regeneration and 40,090 for safety duplication at the SGSV.

Currently, more than 29,000 accessions have been regenerated through the collective efforts of over 40 partners. About 24,000 accessions have sufficient seeds for storage, first- and second-level safety duplication. Some 17,769 accessions have already been duplicated at the SGSV by 21 partners from 17 countries.

Communications, Engagement and Outreach. During 2024, we have seen a total of 5,617 users visiting the BOLD website,<sup>13</sup> with more than 10,844 pageviews. BOLD communications highlights include:

- Launch of the online Crop Chronicles campaign. With stories,<sup>14</sup> animated videos,<sup>15</sup> podcasts,<sup>16</sup> recipes, Q&As,<sup>17</sup> slideshows, we celebrate the seven crops our partners are working on in WP2.
- Media coverage: during the January-June 2024 period, BOLD has appeared in The Guardian,<sup>18</sup> Devex,<sup>19</sup> The Africa Report, Seed World and the BBC,<sup>20</sup> among others.

<sup>8</sup> <https://www.nmbu.no/en/research/projects/seed-system-toolkit>

<sup>9</sup> <https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/3145800>

<sup>10</sup> <https://www.pe-rc.nl/seed-engagement2023>

<sup>11</sup> <https://www.pnas.org/doi/10.1073/pnas.2218777120>

<sup>12</sup> <https://www.pnas.org/doi/full/10.1073/pnas.2218777120>

<sup>13</sup> <https://bold.croptrust.org/>

<sup>14</sup> <https://www.croptrust.org/story-articles/potato/>

<sup>15</sup> <https://www.youtube.com/watch?v=2aCP6AxBkNo>

<sup>16</sup> <https://www.croptrust.org/news-events/podcasts/crop-chronicles-podcast-grasspea-breaking-a-stigma/>

<sup>17</sup> <https://www.croptrust.org/news-events/news/pre-breeding-for-dummies-with-anna-backhaus/>

<sup>18</sup> <https://www.theguardian.com/environment/2024/jan/29/rare-rice-species-suriname-saamaka-maroon-slavery-climate-resilience>

<sup>19</sup> <https://www.devex.com/news/opinion-how-gene-banks-act-as-guardians-against-climate-uncertainty-107764>

<sup>20</sup> <https://www.bbc.com/news/articles/c99z7wwq1lgo>

- A total of 17 BOLD blogs, among them: Celebrating the BOLD Women Behind Crop Conservation (WP1);<sup>21</sup> Life Insurance for Genebanks (WP4);<sup>22</sup> Breaking the Stigma of Grasspea in South Asia (WP2).<sup>23</sup>
- The BOLD Voices video series continues spotlighting our partners. e.g. in Suriname.<sup>24</sup>
- Social media content related to the BOLD Project is tracked with the hashtag #BOLDcwr. In 2024, it has been mentioned 1512 times, received more than 138,000 likes and reached 15 million people (according to Brand24 software used to track the content with this hashtag).
- Finally, BOLD has been present in many events around the world. Notable highlights include the German Plant Breeding Conference (March 2024); the first International Lathyrus Day, in Ghent, Belgium; and the BOLD Policy Workshop<sup>25</sup> (June 2024).

**Building Opportunities for Lesser-known Diversity in Edible Resources (BOLDER)**. BOLDER was approved by Norad on 7 December 2023 and will be supported with up to an additional NOK 40 million. Growing a diversity of crops is a key strategy farmers can use to protect themselves against climate change. BOLDER will enhance the conservation, production and consumption of key neglected and underutilized species (NUS) that are nutritious, robust, environment-friendly and important for local communities. These crops are important sources of nutrition, but many have fallen out of favor because of the lack of attention paid to them by researchers, breeders and policymakers. By providing farmers in four countries (Benin, Ghana, Uganda, Tanzania) with more options through the increased use of NUS, BOLDER will increase communities' access to foods with high nutritional value and bolster efforts to climate-proof agriculture. As such, BOLDER is part of the Crop Trust's efforts to implement the Vision for Adapted Crops and Soils (VACS), an initiative of the US State Department and the African Union. As a first activity, the capacity development workshop on "Crop Diversity Conservation and Use for African Policy Makers and Practitioners" was organized by the Crop Trust and the Plant Treaty Secretariat in collaboration with the African Union Commission (AUC), hosted by CIFOR-ICRAF at their headquarters in Nairobi, Kenya from 23-27 October 2023. In February 2024 we hosted an inception meeting with key partners: the Alliance of Bioversity International & CIAT, NMBU and WorldVeg. This meeting allowed us to clearly define the roles of all partners across the three project outputs. During this reporting period, we established agreements with these partners and we held stakeholder meetings in July and August 2024. These meetings have been used to identify priority NUS in the project countries. We also recruited a Project Specialist who will support the implementation and management of this component.

**National Seeds Collections for Climate-Resilient Agriculture in Africa (Seeds for Resilience, SFR)**. Seeds for Resilience SFR is a 5-year project which started in May 2019. The project is funded by the Government of Germany (BMZ), through the German Development Bank (KfW). SFR aims to safeguard crop diversity for the long-term in five national genebanks in Africa, and to empower them to develop climate-resilient crop varieties:

- Ethiopian Biodiversity Institute (EBI) in Addis Ababa, Ethiopia.
- Genetic Resources Research Institute (GeRRI) at the Kenya Agricultural & Livestock Research Organization (KALRO) in Nairobi, Kenya.
- National Plant Genetic Resources Centre (NPGRC) at the Zambia Agriculture Research Institute (ZARI) in Lusaka, Zambia.

<sup>21</sup> <https://www.croptrust.org/news-events/news/bold-women-crop-conservation/>

<sup>22</sup> <https://www.croptrust.org/news-events/news/life-insurance-for-genebanks/>

<sup>23</sup> <https://www.croptrust.org/story-articles/breaking-the-stigma-of-grasspea-in-south-asia/>

<sup>24</sup> <https://www.youtube.com/watch?v=Sx1ytincA4Y>

<sup>25</sup> <https://www.croptrust.org/news-events/news/crop-diversity-meets-climate-policy-in-bangkok/>

- National Centre for Genetic Resources and Biotechnology (NACGRAB) in Ibadan, Nigeria.
- Plant Genetic Resources Research Institute (PGRRI) in Bunso, Ghana.

Following external reviews at the start of the project, each partner developed a Recommendation Action Plan (RAP) that identified key areas for improvement. Progress has been made in the implementation of these plans, assisted by training in genebank operations and the procurement of new equipment. These activities ensure the long-term conservation of genebank collections and were combined with the development of ‘Germplasm User Groups’ (GUGs) to increase awareness and local use of genebank collections.

Capacity building. SFR has delivered capacity building through workshops, technical attachments, and training programs, covering topics such as genebank management. The training sessions have improved the operational efficiency and technical expertise of genebank staff, enabling better management and documentation of seed collections. As a result of these activities, genebank partners have introduced Quality Management Systems (QMS) across all genebank operations, ensuring consistency in procedures such as seed viability testing, regeneration, and documentation. The development of Standard Operating Procedures (SOPs) across the genebank partners has further supported these efforts, providing clear guidelines for the major aspects of genebank management.

The project assisted partners with both first and second level safety duplication of their collections, with a combined total of 4,040 accessions from Nigeria, Ghana, Kenya and Zambia deposited at the Svalbard Global Seed Vault. The project also focused on publishing accession information online via Genesys, and helping genebanks implement the genebank information system GRIN-Global Community Edition (GGCE). SFR genebanks have uploaded over 110,000 accessions to Genesys since the start of the project. The Crop Trust is also supporting genebanks to list their collections in GLIS.

SFR continues to provide equipment to genebank to support operations. Aluminium foil bags, motor vehicles and ICT equipment have been delivered to partners, assisting the collection, conservation and documentation of the genebank collections. Several specialist items for genebank activities have also been delivered to partners, such as seed blowers, counters and aspirators. A further suite of specialist laboratory equipment is due to be sent to partners, which will enhance and improve the efficacy of seed conservation across the genebanks.

Plans are underway for the establishment of new genebank infrastructure upgrades. These include the construction of specialist rooms to dry and store seed to international standards, along with upgrades to a range of seed processing rooms. These improvements are critical to enhancing the preservation and viability of seed collections, ensuring that they are stored optimally for longevity and future users.

Increasing awareness and use of genebank collections. SFR included a ‘use’ component, to improve the awareness, access and use of genebank crop diversity by farmers. This component included the formation of Germplasm User Groups (GUGs) in each partner country, involving local farmers in the evaluation, selection, and multiplication of crop varieties conserved in the genebanks. Participatory varietal selection trials have been conducted, leading to the identification and multiplication of farmer-preferred crop varieties, particularly those that demonstrate resilience to climate change. To ensure collections reach end users, field evaluation trials with farmers identified important climate-resilient varieties for local use; particularly underutilized crops like traditional leafy vegetables, Bambara groundnut, and sorghum. SFR partners are now developing action plans to guide other national genebanks in sharing collections with user groups.

More generally, SFR trained partners in communications strategy, helped them develop a communications plan and provided outreach materials (such as slide decks and brochures) to support partners in building their public image and reach new audiences. genebanks have now implemented these plans, resulting in increased media exposure and the development of genebank websites. These

techniques and tools have increased the genebanks' visibility and connections to farmers, public bodies, researchers and breeders.

**Future plans.** As the project approaches its final year, efforts are focused on completing the remaining infrastructure upgrades and the second round of external reviews to guide the long-term vision for each genebank. The lessons learned from the SFR project will inform future initiatives with national genebanks, to conserve crop diversity and enable more productive, resilient agriculture in Africa.

**Darwin Initiative Project: Sweetpotato, a model for food security and long-term conservation of biodiversity.** This project, funded by the UK Government's Darwin Initiative, applies a robust methodology to conserve and use sweetpotato genetic diversity as a model for the long-term, secure conservation of clonal crops in general. The aim is to: (1) collect sweetpotato landraces in Madagascar and Zambia, conserve this diversity both in these countries and *in vitro* and in cryo at the International Potato Centre (CIP) in Peru; (2) clean the material of pathogens; and (3) return pathogen-free planting material of diverse landraces back to farmers in the partner countries. The 3-year, USD 1.34 million project started in June 2022 and will run through March 2025. To date, collection of farmer sweetpotato landraces from both countries, Madagascar and Zambia, has been completed and the landraces have been placed into *in vitro* culture by CIP-Nairobi. The number of landraces collected and securely transported to CIP-Lima far exceeded targets with 260 from Zambia (collected under the Seeds for Resilience project) and 75 from Madagascar. 27 landraces from Zambia are clean of pests and diseases and 22 of these were successfully repatriated. 16 of these landraces were successfully multiplied and over 44,000 vines have been distributed to smallholder farmers in 8 communities in Zambia by the end of April 2024. 25 clean landraces were repatriated to Madagascar, of which 22 survived and over 7,000 vines have been distributed from 16 landraces to farmers in 11 communities. Two shipments of landraces between CIP-Kenya and CIP-Peru have occurred and a subset of these landraces is in the process of *in vitro* multiplication for cryopreservation.

**Quality and Risk Management Systems.** The Crop Trust strives to define and raise quality standards in national and international genebanks through partnerships and projects. Through in-person and online events, genebank partners develop their capacity to implement continuous improvements in their administrative, technical and operational performance in alignment with established standards. Implementing a robust quality management system (QMS) helps them to deliver crop diversity and services that meet user expectations consistently. Highlights of QMS capacity-building events and activities in 2024 include:

- An in-person Genebank Operations and Advanced Learning (GOAL) workshop was organized with the objective of building the capacities of national and regional genebanks to manage crop diversity in alignment with international agreements. The workshop was on 4-8 March 2024 in Lusaka, Zambia with the participation of SADC partners.
- Standard operating procedures (SOPs) for all SFR genebanks were edited and harmonized in preparation for the creation of their genebank quality manual, a set of documents that outline the quality management system of a genebank. It includes policies, procedures, and responsibilities for ensuring product and service quality, and provides a framework for consistent quality management practices.
- QMS Community of Practice (QMS-CoP) online sessions are organized to tackle the technical aspects of conservation in an informal forum. One online presentation was offered to the SFR community in 2024, on the subject of "Improving user access to the diversity in your genebank: subsets and core collections."
- SFR genebanks participated in a collective exercise that identified new and emerging threats to their operations. Forty new risks were included in the updated version of their Genebank Red Book of Risks.

### *Support to the Svalbard Global Seed Vault*

Safety duplication is recognized by the FAO Genebank Standards as an essential element of good genebank practice. The Crop Trust supports the duplication under black-box conditions of crop diversity collections at the SGSV as an ultimate safety net for the global system of genebanks. At present, the SGSV holds 1,301,397 samples from 116 genebanks, encompassing 1,171 genera and 6,185 species. In total, 34,270 accessions were added to the Vault in 2024 by 37 institutes. Of the 1,301,397 accessions deposited in the Vault, 17,769 have been deposited with funding from the Biodiversity for Opportunities, Livelihoods and Development (BOLD) project by 21 partners. 19 of these partners deposited for the first time in 2023 and 2024. 4,040 accessions from Nigeria, Ghana, Kenya and Zambia were deposited with funding from the Seeds for Resilience (SFR) project. The Seed Vault celebrated its 15-year anniversary in 2023. The Endowment Fund supports the running costs of the SGSV.

## **B. Strengthening information systems for genebanks**

The Crop Trust continues to support the development and adoption of two information systems: Genesys<sup>26</sup> and GRIN-Global Community Edition<sup>27</sup> (GGCE), convenes the Community of Practice on Data Management, and organizes regional workshops on genebank data management.

### *Community of Practice on Data Management*

The Crop Trust organizes monthly teleconferences in English, Spanish and French for the Community of Practice on Data Management. In the first half of 2024, the community consisted of 150 staff from international and national genebanks. In March 2024, a regional workshop was organized on data management for genebanks in New Delhi with support from ICAR and the India country office of the Alliance of Bioversity & CIAT. Representatives from 13 genebanks in 11 countries (Bhutan, Laos, Morocco, Vietnam, Bangladesh, ICRISAT, IRRI, WorldVeg, Australia, New Zealand and India) attended the training. The next workshop is planned in Colombia in November, with assistance from Agrosavia.

### *Genesys*

The Crop Trust continues to support the development of Genesys as a fundamental component of an effective global genebank system. Genesys has been managed by the Crop Trust since 2013, with the Plant Treaty Secretariat participating in the advisory committee since the beginning. Genesys now allows searching data across over four million active accessions held in 509 genebanks. The largest providers of data to Genesys are the CGIAR genebanks, USDA NPGS (USA), Embrapa (Brazil), and the European Cooperative Programme for Plant Genetic Resources (ECPGR). Genesys continues to be integrated and connected with FAO's World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS) and the Plant Treaty's Global Information System for PGRFA (GLIS).

The Crop Trust works continuously with data providers to help them share up-to-date information about their collections and actively promotes and encourages genebanks to publish data in Genesys. In 2024, one new agreement to publish data was established, and another two were initiated, with COGENT and ICTA Guatemala.

To facilitate this onboarding of new partners, the Genesys team has organized six presentations in the first half of 2024, consisting of 4 webinars open to all partners, one webinar focused only on the

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<sup>26</sup> <https://www.genesys-pgr.org>

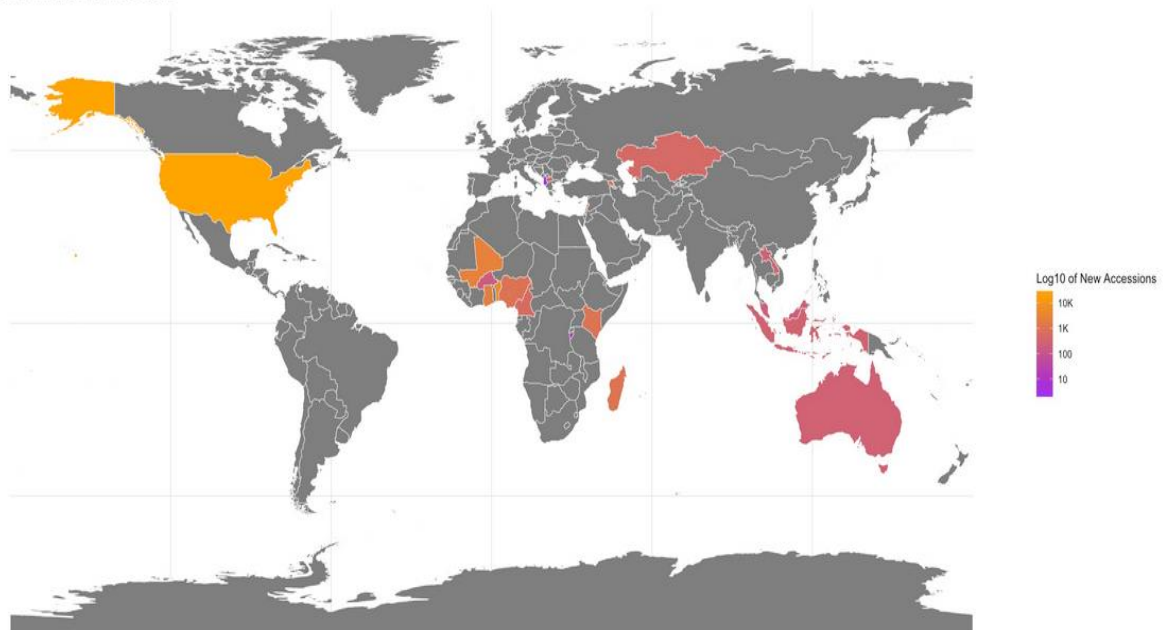
<sup>27</sup> <https://ggce.genesys-pgr.org>

BOLD partners, and one presentation during the CoP-DM. Three webinars on uploading trait data<sup>28</sup> were organized in February and were attended by 56 genebank staff from 40 institutes. The two webinars on uploading passport data<sup>29</sup> in April were attended by over 32 genebank staff. In the CoP-DM sessions of June, we presented Embedded Genesys and made the presentation available on YouTube.

In 2024, we further improved Genesys with: better tools for genebanks to upload, document, validate, and publish trait data and make such data searchable<sup>30</sup>; an updated Subsetting Tool<sup>31</sup> (by the Alliance Bioversity-CIAT); and a new version of Embedded Genesys<sup>32</sup>. Embedded Genesys is a widget that enables mirroring data from Genesys on genebank websites. It includes support for browsing and searching passport data, displaying accession details, maps, subsets and datasets associated with each accession. It includes the option to handle germplasm requests, characterization and evaluation data, subsets, data visualizations such as overviews and maps, similarity search tool, passport data completeness scores (PDCI) calculations, and the option to display the data in different languages. Currently, the following genebanks implement Embedded Genesys on their websites: WorldVeg<sup>33</sup>, International Center for Biosaline Agriculture (ICBA)<sup>34</sup>, NACGRAB (Nigeria)<sup>35</sup>, IITA<sup>36</sup>, ILRI<sup>37</sup> and AfricaRice<sup>38</sup>.

In the first half of 2024, more than 1,200,000 accession records have been refreshed and an additional 46,964 accessions have been added to Genesys. The additions come from 27 national genebanks located in 20 different countries as shown in the map below:

Geographical Map of New Accessions



<sup>28</sup> <https://www.genesys-pgr.org/content/news/173/in-case-you-missed-it-webinar-recording-part-3>

<sup>29</sup> <https://www.genesys-pgr.org/content/news/175/passport-data-upload-via-the-genesys-uploader-tool>

<sup>30</sup> <https://www.genesys-pgr.org/content/news/158/unleashing-traits-through-dynamic-visualization>

<sup>31</sup> <https://www.genesys-pgr.org/content/news/156/genesys-rolls-out-the-subsetting-tool>

<sup>32</sup> <https://www.genesys-pgr.org/content/news/131/embedded-genesys>

<sup>33</sup> <https://genebank.worldveg.org>

<sup>34</sup> <https://www.biosaline.org/about-icba/facilities/genebank/accessions>

<sup>35</sup> <https://www.nacgrab.gov.ng/seed-genebank/seed-collection>

<sup>36</sup> <https://www.iita.org/germplasm-request/>

<sup>37</sup> <https://www.ilri.org/seed-request/>

<sup>38</sup> <https://www.africarice.org/request-for-germplasm>

### *Countries of genebanks contributing to Genesys in 2024.*

Around half of these new accessions come from the USDA genebanks of the National Plant Germplasm System. The diversity of these accessions is noteworthy, as they represent over 2,300 different species of crop wild relatives, improved cultivars and genetic stocks. It is possible to explore USDA's new accessions.<sup>39</sup>

Partners of the BOLD project have contributed to the second-highest number of new accessions during this time period. The project is helping 42 partners around the world to regenerate seed and to back them up both at another genebank and at the SGSV for long-term safekeeping. Genesys displays data from these partners' 2023 and 2024 deposits to the SGSV. Some of these partners also share passport data with Genesys that extends beyond the scope of the project, for example Mali, Armenia and Albania. The dedicated page<sup>40</sup> for these genebanks provides easier access to this data. The BOLD project is working with another 15 national genebanks<sup>41</sup> in -Africa

Asia and Latin America to strengthen their capacity to manage, document, conserve and back up the crop diversity that they hold by upgrading their IT infrastructure, adoption of GGCE for internal data management, and making data available in Genesys. Lebanon and Laos uploaded passport data to Genesys during the first half of the year. Lebanon published over 1,400 accessions of crop wild relatives collected jointly with the Millenium Seed Bank between 1996 and 2010, and repatriated to the country in 2013. Laos published 285 rice accessions, all of which are traditional cultivars originating from the country.

During the reporting period, partners have added 25 trait datasets in a searchable format. CIP<sup>42</sup> added data on level of ploidy and chromosome number of different potato species, while IITA, ILRI, ICARDA, and ICRAF published agromorphological characterization datasets. National genebanks of Kenya, Ghana and Nigeria uploaded characterization data on sorghum, finger millet, rice, eggplant and maize. WorldVeg uploaded one dataset characterizing 5,270 accessions of chillies across 88 traits, and one evaluation dataset against different viruses.

## **GRIN-Global Community Edition**

The Crop Trust collaborated with the US Department of Agriculture (USDA) and Bioversity International in the 2010's to develop a free-to-use genebank data management software package, GRIN-Global, which was initially released in 2011. In 2019, work started on the next generation of the system, GRIN-Global Community Edition (GGCE), under the umbrella of the CGIAR Genebank Platform. The Crop Trust has strengthened the team that supports genebanks in data management and publishing, which since late 2021 also includes the development and maintenance of GGCE in collaboration with international and national genebanks.

GGCE is focused on the use of barcoding and other information technologies to facilitate data acquisition and retrieval by technicians, and improve data quality in routine operations, including reporting on distributions with the SMTA, assignment of DOIs, interactions with Genesys, workflow support and email notifications to genebank staff.

<sup>39</sup> <https://www.genesys-pgr.org/a/overview/v285JwmYBxr>

<sup>40</sup> <https://www.genesys-pgr.org/network/BOLDWP4>

<sup>41</sup> <https://www.genesys-pgr.org/network/BOLD>

<https://genebank.worldveg.org>

<sup>41</sup> <https://www.biosaline.org/about-icba/facilities/genebank/accessions>

<sup>41</sup> <https://www.nacgrab.gov.ng/seed-genebank/seed-collection>

<sup>41</sup> <https://www.iita.org/germplasm-request/>

<sup>41</sup> <https://www.ilri.org/seed-request/>

<sup>41</sup> <https://www.africarice.org/request-for-germplasm>

<sup>41</sup> <https://www.genesys-pgr.org/a/overview/v285JwmYBxr>

<sup>41</sup> <https://www.genesys-pgr.org/network/BOLDWP4>

<sup>41</sup> <https://www.genesys-pgr.org/network/BOLD>

<sup>42</sup> <https://www.genesys-pgr.org/datasets/v2QLRrDAeeQ>



The BOLD Project provides support from 2024 onwards to 15 national genebanks in information technologies and automation of genebank operations, backed by GGCE. The genebanks of Ecuador, Morocco, Azerbaijan, Uganda, and Pakistan are part of the first batch receiving support for migration to GGCE. The same approach was taken in the Seeds for Resilience project, where the five partner national genebanks received support to upgrade their information infrastructure and data management, with Kenya and Nigeria successfully using GGCE for collection management, and Ghana and Zambia making good progress towards this goal. On-site intensive training and support with GGCE was provided to IITA and Ghana in the first half of 2024.

### **C. Global crop conservation strategies (GCCS)**

The three-year project on “Mainstreaming the Global Crop Conservation Strategies in Plant Treaty Processes<sup>43</sup>” is led by the Crop Trust in close collaboration with the Plant Treaty Secretariat. It started in December 2022 and is funded by the German government. The data, results, and recommendations of the GCCS are relevant to many of the existing work areas of the Plant Treaty. As they are produced by subject matter experts acting in their personal capacities, they can provide a valuable additional channel for strengthening the evidence-base for the Plant Treaty’s work. Furthermore, mainstreaming the GCCS in the processes of the Plant Treaty could facilitate implementation of the strategies.

Project activities conducted in the reporting period included: (1) production of a document outlining major findings and recommendations following a review of survey data from 15 recent GCCS processes and an effort to integrate these data into a combined database; (2) preparation of summaries of the GCCS tailored to different Plant Treaty stakeholders; (3) consultations with representatives of the *Ad Hoc* Technical Committee on Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (ACSU) on their Terms of Reference and how they are related to the GCCS; and (4) supporting selected Plant Treaty contracting parties to notify their Annex 1 collections as available in the Multilateral System. As the Terms of Reference of the ACSU include a task related to global crop conservation strategies, the Crop Trust was invited to participate as an expert observer in ACSU meetings.

### **RESOURCE MOBILIZATION**

Since inception, donors have contributed USD 262.8 million in grants as at 30 June 2024, of which approximately 95.4% has been provided by national governments. Crop Trust received USD 3.8 million in endowment contributions in 2024 as at 30 June. The contributions received during that period were provided by the UK (USD 3.7M) and Limagrain (USD 54K). A contribution is still expected in 2024 from the USA (USD 5.4 million).

Resource mobilization efforts between January and June 2024 included bilateral donor meetings with a number of government donors including Norway, Sweden, US and South Korea. Efforts included further explorations of innovative finance mechanisms. For instance, the potential to use a credit guarantee from a donor to partially underwrite the risk of an upcoming institutional investor biodiversity-themed impact fund. The idea was that the partial credit guarantee may be helpful in mobilizing private institutional funding, with a share of the proceeds then benefitting the Crop Trust. Ultimately it was not possible to proceed given the difficulties in ring-fencing particular impact assets in the fund that were a match for the donor’s requirements regarding geography and target beneficiaries of the investments (i.e. of smallholder farmers). In addition, the technical services concept developed the previous year by the MBA students at the Frankfurt School was shared with a potential donor to consider for financing. There was further follow-up with the IADB, GEF and GCF during the reporting period, and a proposal was submitted for IADB’s consideration as part of the GEF’s Innovating Financing window in June.

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<sup>43</sup> <https://www.croptrust.org/work-1/projects/mainstreaming-the-global-crop-conservation-strategies/>

The Crop Trust also advanced in its exploration of accreditation requirements for GCF with the support of an external consultant. Moreover, an initial analysis was conducted regarding mapping stakeholders in the coconut value chain as a way of preparing the ground for potential fundraising from both public and private sectors in countries where coconut is important economically, and hence where a case could be made to safeguard coconut diversity. In addition, two virtual roundtable sessions were held as part of the UK Breakthrough Agenda initiative to explore the feasibility of attracting climate and biodiversity finance, as well as non-ODA finance to support the Crop Trust's Endowment Fund. Speakers included the Bezos Earth Fund, the Centre for Pacific Crops and Trees (CePaCT) of SPC, ICARDA and one of the World Food Prize 2024 Laureates.

Finally, the Crop Trust launched the first year of data collection under the newly developed impact framework and held an internal workshop on translating the impact indicators being developed as part of its impact framework into its communication projects to support future resource mobilization efforts.

## COMMUNICATION & OUTREACH

In 2023 and the first half of 2024, the Crop Trust engaged target audiences and the general public across a variety of platforms. Building on the 2022 launch of the new website, the Crop Trust published news, stories, factsheets, multimedia content and project resources online, amplified by social media that encouraged conversation around crop diversity and our work. We continued to build the Crop Diversity Digest news platform, which features stories about Crop Trust work, our partners, and global efforts towards the conservation and use of crop diversity. The Digest served as a main platform for posting campaigns such as the Crop Chronicles that showcase the seven crops in focus for the BOLD project and the Seed Heroes stories about pioneers in the crop diversity space. The Crop Trust also continued to build engagement with key stakeholders through The Dish monthly newsletter. Both the Digest and the Dish were used to promote and highlight events held throughout the year, including the first Global Crop Diversity Summit.

### *Global Crop Diversity Summit*

On 14 November 2023, the Crop Trust and the Plant Treaty hosted the first-ever Global Crop Diversity Summit. Held under the patronage of German Federal President Frank-Walter Steinmeier, this flagship event convened key stakeholders from around the world.<sup>44</sup> Over 250 people attended in person and the livestream reached more than 1,500 people.

The Summit marked a major milestone in the Crop Trust 2030 Strategic Plan and was held to:

- Draw political attention to the risk of losing crop diversity.
- Highlight opportunities for using this diversity.
- Emphasize the need for sustainable financing of genebanks.

The Summit also aimed to advance cooperation among genebanks in a Global Genebank Partnership. Diverse speakers represented all regions of the world and included high-level political representatives from Brazil, Colombia, Germany, Norway, and the United States. Panelists from NGOs, UN agencies and other organizations, youth representatives, chefs, and artists brought their voices and perspectives to the discussions.

A scientific background paper on “Empowering genebanks to transform agrifood systems”<sup>45</sup> informed the discussions. This paper underscores the urgent need to transform agrifood systems to address food insecurity, climate change, and biodiversity loss. It emphasizes the importance of empowering

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<sup>44</sup> <https://www.croptrust.org/global-crop-diversity-summit/>

<sup>45</sup> <https://www.croptrust.org/global-crop-diversity-summit/background/>

genebanks through sustainable funding and concludes with an urgent call for action in support of genebanks.

A Communiqué<sup>46</sup> shared at the Summit highlighted the key actions to safeguard future food security that governments and other donors should prioritize for support. The Communiqué was presented to the 10th Session of the Governing Body of the Plant Treaty in November in Rome, where several delegates lauded the event. It was also presented at COP28 in December in Dubai to highlight key findings on climate change mitigation and adaptation.

#### *Other events*

As per the policy guidance in past Governing Body resolutions, collaboration with the Treaty in 2023-2024 also included coordinated outreach efforts and events such as:

- Press releases and opinion pieces around each Svalbard deposit.<sup>47</sup>
- Joint GB-10<sup>48</sup> side event “Strengthening information-based decision-making in PGRFA management: relevance of Global Crop Conservation Strategies and the Plants that Feed the World projects to the International Treaty.”
- Crop Diversity Day 2024 in Rabat, Morocco “Climate and Biodiversity: Towards Resilient Food Systems in the MENA Region.”<sup>49</sup>

The Crop Trust will continue this collaboration, with a panel discussion planned at the CBD COP16<sup>50</sup> in Cali, Colombia on “Food Systems and Agrobiodiversity: An Intercultural Approach” featuring a Plant Treaty panelist and the Ministry of Agriculture and Rural Development of Colombia. We also look forward to collaborating with the Treaty at the WEF in 2025.

During the 2023-2024 period, the Crop Trust advanced engagement through other events that highlighted the value of conserving crop diversity and making it available for use:

- Global Landscapes Forum (GLF) Live celebrated the signing of the Long-term Partnership Agreement with IITA.<sup>51</sup>
- Climate Week NYC event in collaboration with Bezos Earth Fund and One CGIAR<sup>52</sup> showcased “Unlocking Climate Solutions: Embracing Nature and Agricultural Heritage”
- GLF Live highlighted the Seeds for Resilience project.<sup>53</sup>
- GB10 joint side events were held with NordGen on “Svalbard Global Seed Vault: 15 years of safeguarding crop diversity” and with the CGIAR Genebank Initiative on “Capacity sharing projects to support the global system.”<sup>54</sup>
- Executive Director Stefan Schmitz delivered a High-level Segment Statement at the UNFCCC COP28.<sup>55</sup>
- Other side events and speaking engagements at UNFCCC COP28 in UAE included:<sup>56</sup>
  - “Unleashing the Power of Crop Diversity for Climate Resilience” in collaboration with WWF and Alliance of Bioversity and CIAT.
  - “Crop Diversity for Climate Change Adaptation and Mitigation Contributing to Resilient and Nature Positive Futures for Farmers Globally” in collaboration with CIP CIMMYT, WWF and Alliance of Bioversity and CIAT.

<sup>46</sup> <https://www.croptrust.org/global-crop-diversity-summit/communique/>

<sup>47</sup> <https://www.croptrust.org/resources/ghana-genebank-becomes-100th-depositor-to-safeguard-food-crops-in-the-seed-vault/>

<sup>48</sup> <https://www.croptrust.org/news-events/events/10th-session-of-the-governing-body/>

<sup>49</sup> <https://www.croptrust.org/news-events/events/crop-diversity-day-rabat-2024/>

<sup>50</sup> <https://www.croptrust.org/news-events/events/un-biodiversity-conference-cop-16/>

<sup>51</sup> <https://www.croptrust.org/news-events/events/ghf-live-banking-on-our-future-with-seeds-1/>

<sup>52</sup> <https://www.croptrust.org/news-events/events/new-york-climate-week/>

<sup>53</sup> <https://www.croptrust.org/news-events/events/ghf-live-how-can-we-safeguard-africas-crops/>

<sup>54</sup> <https://www.croptrust.org/news-events/events/10th-session-of-the-governing-body/>

<sup>55</sup> [https://youtu.be/uwRvQ\\_OJ\\_Q4?si=89CrqpmMxeTdcJyG](https://youtu.be/uwRvQ_OJ_Q4?si=89CrqpmMxeTdcJyG)

<sup>56</sup> <https://www.croptrust.org/news-events/events/crop-trust-at-cop-28/>

- “Global Commons for Climate-Resilient Future Generations: The case of Biodiversity” in partnership with UNFCCC Resilience Frontiers.
- “Unleashing the Power of Crop Diversity for Climate Resilience” in partnership with WWF and Alliance of Bioversity and CIAT.
- A Food Forever Experience in partnership with RGB Kew, One CGIAR, ICBA, Chefs’ Manifesto and UNFCCC Resilience Frontiers.
- Speaking roles by Executive Director Stefan Schmitz and Director of Programs Sarada Krishnan at sessions hosted by OPEC Fund and CGIAR Climate Impact Platform.
- A reception at the Old Town Hall of the City of Bonn commemorated the partnership with the City of Bonn.<sup>57</sup>
- A GLF Live collaboration celebrated the International Year of the Millets (IYOM).<sup>58</sup>
- A Global Forum for Food and Agriculture (GFFA) event with Julius-Kühn-Institute showcased “Crop Diversity for a Healthy Planet and Those Who Live on It”.<sup>59</sup>
- Support of the German Plant Breeding Conference “Accelerating Crop Genetic Gain” and a session “Accelerating crop breeding for improved climate resilience and sustainability” highlighting achievements and lessons learned in the BOLD project.<sup>60</sup>
- Support of the International Lathyrus Day, hosted by the Fernand Lambein Fund.<sup>61</sup>

#### Digital engagement

We organize regular online Genebank Resources on the Web (GROW) webinars to tackle new, speculative and provocative issues related to the role of genebanks in the conservation and use of crop diversity:

1. Jayanthi Nadarajan from the New Zealand Institute for Plant and Food Research Limited presented “Seed storage behavior: what do we know now that we didn't know 50 years ago?” 15 May 2024.
2. Sean Hoban from the Morton Arboretum presented “Making *ex situ* plant conservation more effective: conserving genetic diversity using DNA as well as simple, affordable proxy metrics.” 29 February 2024.
3. Tizina Ulian from Kew Gardens presented “Useful plants to develop bioeconomics.” 26 October 2023.
4. David Ellis, emeritus scientist from the International Potato Center, presented “When is it good to be left out in the cold?” The Cryopreservation Initiative.” 24 August 2023.
5. Carol Baskin from the University of Kentucky presented “Don’t let seed dormancy be a headache: how to understand, classify and overcome it.” June 28, 2023.
6. Michael Quinn, director of the CGIAR Excellence in Breeding Platform, presented “CGIAR Breeding - Who Benefits and How to Increase Those Benefits.” 27 April 2023.
7. Patrick Stover, director of the Institute for Advancing Health through Agriculture, presented “Responsive Agriculture-what do we want from the food System?” 23 February 2023.

In 2023, the Crop Trust also co-hosted a webinar with the Crawford Fund to honor the late Tim Fischer, who had previously chaired both organizations. A former deputy prime minister of Australia, Fischer was a passionate advocate for food security and biodiversity conservation. Tim passed away in 2019 and his legacy will long endure.

<sup>57</sup> <https://www.croptrust.org/news-events/events/crop-trust-and-city-of-bonn-partnership-closing-event/>

<sup>58</sup> <https://www.croptrust.org/news-events/events/glf-live-year-of-the-millets/>

<sup>59</sup> <https://www.croptrust.org/news-events/events/crop-trust-at-gffa/>

<sup>60</sup> <https://www.croptrust.org/news-events/events/german-plant-breeding-conference-2024-accelerating-crop-genetic-gain/>

<sup>61</sup> <https://www.croptrust.org/news-events/events/international-lathyrus-day/>

In 2024, the Crop Trust launched the Crop Chronicles<sup>62</sup> as a podcast and short animation, adding new digital platforms for engagement. The Crop Chronicles tell the stories of our seven key BOLD crops in engaging ways. The podcast gives an in-depth auditory exploration of each crop's history and importance, while the short animation provides a quick at-a-glance overview that is optimized for sharing on social media.

#### *Media and social media*

Outreach in 2023 and 2024 resulted in significant exposure in the global media and engagement on social media. Coverage included major media outlets such as Forbes<sup>63</sup>, Reuters for our work<sup>64</sup> and the Svalbard Global Seed Vault<sup>65</sup>, the BBC<sup>66</sup>, and PBS<sup>67</sup>. The Crop Trust was also featured in development news, including The Africa Report<sup>68</sup>, Devex<sup>69</sup>, and Foodtank<sup>70</sup>.

Between August 2023 and August 2024, the Crop Trust saw significant gains in social media engagement. Our social media focuses on four main channels that allow for interactive conversation: Facebook, LinkedIn, X (formerly Twitter), and Instagram.

- Facebook<sup>71</sup> achieved remarkable reach with over 18 million impressions and nearly 600,000 link clicks. The platform added 4,831 new fans, with a high level of engagement reflected in over 270,000 reactions. It was also the platform generating the most clicks to the Crop Trust website. Video content on Facebook has the most potential for engagement and reach, with all three of our top performing posts in video format.
- LinkedIn<sup>72</sup> performed well with over 800,000 impressions and a notable 47,000 clicks. The platform saw strong growth with 5,903 new followers. This shows the professional audience's interest in Crop Trust content.
- Twitter<sup>73</sup> has shown solid engagement with nearly 1 million impressions and growing number of engagements. The platform gained 2,676 new followers and saw a high number of likes and reposts, indicating strong content resonance.
- Instagram<sup>74</sup> generated the highest number of impressions at 15.48 million, reflecting a significant reach. Despite a lower posting frequency, the platform maintained steady engagement with nearly 12,000 likes and added 2,432 new followers.
- This social media engagement supports a robust communications and outreach strategy that seeks to reach target audiences and highlight the Crop Trust's work to conserve crop diversity and make it available for use. Along with traditional media, digital engagement, event engagement and a strong online presence, the Crop Trust will continue to use communications to innovate across platforms, elevate our brand and assert our voice in the global

<sup>62</sup> <https://bold.croptrust.org/crop-chronicles/>

<sup>63</sup> <https://www.croptrust.org/news-events/in-the-media/forbes-top-banana-americas-favorite-fruit-confronts-an-uncertain-future/>

<sup>64</sup> <https://www.croptrust.org/news-events/in-the-media/reuters-crop-trust-seeks-more-funding-to-protect-global-seed-diversity/>

<sup>65</sup> <https://www.croptrust.org/news-events/in-the-media/reuters-svalbards-doomsday-vault-gets-record-batch-of-global-crop-seeds/>

<sup>66</sup> <https://www.croptrust.org/news-events/in-the-media/bbc-news-ghana-deposits-seeds-in-arctic-circle-doomsday-vault/>

<sup>67</sup> <https://www.pbs.org/newshour/show/global-seed-vault-becomes-more-important-than-ever-as-climate-change-threatens-crops>

<sup>68</sup> <https://www.theafricareport.com/351359/opinion-safeguarding-africas-diverse-food-crop-seed-collections-against-climate-threats/>

<sup>69</sup> <https://www.croptrust.org/news-events/in-the-media/devex-how-genebanks-act-as-guardians-against-climate-uncertainty/>

<sup>70</sup> <https://www.croptrust.org/news-events/in-the-media/crop-trust-listed-in-the-124-food-and-agriculture-organizations-to-watch-in-2024/>

<sup>71</sup> <https://facebook.com/globalcropdiversitytrust>

<sup>72</sup> <https://linkedin.com/company/global-crop-diversity-trust>

<sup>73</sup> <https://twitter.com/CropTrust>

<sup>74</sup> <https://www.instagram.com/croptrust>

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<sup>75</sup> <https://linkedin.com/company/global-crop-diversity-trust>

<sup>76</sup> <https://twitter.com/CropTrust>

<sup>77</sup> <https://www.instagram.com/croptrust>

## **G. GLOBAL FORUM ON AGRICULTURAL RESEARCH AND INNOVATION<sup>1</sup>**

The Global Forum on Agricultural Research and Innovation (GFAR), recently rebranded as GFAiR, operates through various continental and regional platforms. These include six key regional agricultural research fora, which play a crucial role in facilitating GFAR's mission: FARA (Forum for Agricultural Research in Africa) - Covers Africa; AARINENA (Association of Agricultural Research Institutions in the Near East and North Africa) - Focuses on the Near East and North Africa; APAARI (Asia-Pacific Association of Agricultural Research Institutions) - Represents the Asia-Pacific region; CACAARI (Central Asia and the Caucasus Association of Agricultural Research Institutions) - Covers Central Asia and the Caucasus; EFARD (European Forum for Agricultural Research and Development); FORAGRO (Forum of the Americas for Agricultural Research and Technology Development) - Supports Latin America and the Caribbean.

It is crucial for GFAiR to promote research on Plant Genetic Resources for Food and Agriculture (PGRFA) through its Collective Actions and the Global NARS (National Agricultural Research Systems) Consortium (GNC) because these resources form the foundation of global food security. Plant genetic diversity is essential for breeding new crop varieties that are resilient to climate change, pests, and diseases. By supporting research and the conservation of diverse plant species, GFAiR enables innovations that can address the growing challenges of feeding an increasing global population. Moreover, plant genetic resources are critical for enhancing the nutritional value of crops, which is key to combating malnutrition and achieving Sustainable Development Goals (SDG), particularly Target 2.5 that focuses on maintaining genetic diversity in crops<sup>2</sup>.

Furthermore, GFAiR's role in fostering collaboration through the Global NARS Consortium (GNC) ensures that research efforts on PGRFA are shared globally, avoiding duplication and promoting knowledge exchange across regions. This collaboration is vital for addressing region-specific agricultural challenges while pooling genetic resources from diverse environments to enhance global resilience. By promoting the equitable sharing of benefits derived from PGRFA, GFAiR supports both innovation and fairness, helping countries develop local solutions that contribute to global food systems. This also aligns with the objectives of international frameworks like the FAO's Global Plan of Action for PGRFA, enhancing the sustainability and impact of agricultural practices worldwide.

Several research initiatives across the various fora contribute to the conservation and sustainable use of plant genetic resources, supporting the objectives of the FAO's Commission on Genetic Resources for Food and Agriculture.

### **1) Research conducted by the Regional Fora**

Here are examples of research from each regional agricultural research forum<sup>3</sup>, that contribute to plant genetic resources for food and agriculture (PGRFA), aligning with the objectives of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture, such as conservation, sustainable use, and benefit-sharing<sup>4</sup>:

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<sup>1</sup> Originally submitted for information of the Twelfth Session of the Commission's Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture, held in Rome, Italy, from 10 to 12 December 2024 (CGRFA/WG-PGR-12/24/7/Inf.1).

<sup>2</sup> [CGIAR's Alliance to host GFAR through new agreement](#)

<sup>3</sup> [GFAR scales out Transformational Learning to another continent](#)

<sup>4</sup> [GFAR Collective Action on Inclusive Digital Transformation of Agriculture](#)

### **1. FARA (Forum for Agricultural Research in Africa):**

#### **Development and Conservation of African Orphan Crops**

FARA supports research on the conservation and breeding of **orphan crops**, such as teff, finger millet, and sorghum, which are crucial for food security in Africa. These crops are often neglected in mainstream agricultural research. By conserving their genetic diversity and improving their resilience to climate change, FARA contributes to safeguarding Africa's genetic resources. This research aligns with the Working Group's emphasis on the **sustainable use of plant genetic resources** for food and agriculture.

### **2. AARINENA (Association of Agricultural Research Institutions in the Near East and North Africa):**

**Date Palm Genetic Resources Conservation** In the Near East and North Africa, AARINENA has been involved in **conserving and improving the genetic diversity of date palms**, a vital crop in arid regions. Research focuses on identifying and preserving diverse date palm varieties, improving their resistance to pests and diseases, and enhancing yield. This work is directly relevant to the sustainable use of PGRFA, particularly for arid and semi-arid ecosystems.

### **3. APAARI (Asia-Pacific Association of Agricultural Research Institutions):**

**Rice Genetic Diversity Conservation** APAARI has undertaken projects on the **conservation and use of rice genetic resources**, which are critical for food security in the Asia-Pacific region. The research includes cataloging traditional rice varieties and developing climate-resilient strains. This aligns with the Commission's work on maintaining biodiversity and the **Second Global Plan of Action for PGRFA**, ensuring rice's adaptability to changing environmental conditions.

#### **Global Plan of Action for PGR with FAO**

APAARI played a key role in the regional consultation for the Second Global Plan of Action for Plant Genetic Resources, co-hosted with FAO in July 2024. By facilitating collaboration among national agricultural research institutions, APAARI enhances knowledge sharing and addresses plant genetic resource challenges. Its capacity development efforts support sustainable management and align regional perspectives with global discussions, contributing to SDGs focused on food security and sustainable agriculture.

#### **Gene Editing for Sustainable Agriculture**

In partnership with Korea Biosafety Clearing House (KBCH) and Biotech Consortium India Limited (BCIL), APAARI advanced gene editing technology in the Asia-Pacific region through webinars in 2021 that engaged over 2,500 participants. These discussions emphasized the need for harmonized regulations and led to the creation of a Resource Document on Gene Editing. This document highlights CRISPR's potential to improve crop resilience and food security, advocating for policy collaboration to facilitate the adoption of gene-edited products.

#### **Forgotten Foods Initiative**

APAARI has led the Collective Action on Forgotten Foods since 2020, establishing a framework for research and policy support. Through consultations and workshops, APAARI promotes the sustainable use of underutilized crop genetic resources, raising awareness of their importance for achieving SDGs. Ongoing work is likely to culminate in a 2024 collective action plan for India, Sri Lanka, and Bangladesh, aiming to create a collective action plan for co-creating knowledge and promoting public-private partnerships to conserve forgotten foods.



### **Millet Foundation Guide**

The Millet Foundation Guide, developed by the Government of Odisha, India in collaboration with and guidance by APAARI, highlights the health and environmental benefits of millets. It underscores millets' role in addressing food security and climate change, providing clear insights for various stakeholders. The guide was featured at the International Convention on Millets in November 2023, emphasizing its importance in promoting millet varietal diversity.

#### **1. CACAARI (Central Asia and the Caucasus Association of Agricultural Research Institutions):**

The Central Asia and the Caucasus Association of Agricultural Research Institutions (CACAARI) plays an important role in advancing agricultural research and innovation within its region. Its mission is to serve as a neutral forum where various stakeholders of agricultural research for development in Central Asia and the Caucasus can discuss and debate issues critical to the agriculture of the future.

In the context of Plant Genetic Resources for Food and Agriculture (PGRFA), CACAARI's contributions are significant:

- **Conservation of Wild Fruit Trees:** CACAARI has focused on preserving wild fruit tree species, such as wild apple and apricot, which are vital genetic resources for breeding programs aimed at enhancing fruit production and resistance to pests and diseases. This research directly contributes to the conservation of plant genetic resources, particularly in the context of climate change adaptation and the preservation of wild relatives of domesticated crops. (it is in the paper, already)
- **Regional Collaboration:** By facilitating collaboration among national agricultural research institutions, CACAARI enhances knowledge sharing and addresses plant genetic resource challenges. Its capacity development efforts support sustainable management and align regional perspectives with global discussions, contributing to Sustainable Development Goals focused on food security and sustainable agriculture.
- **Policy Advocacy:** CACAARI engages in policy advocacy to promote the conservation and sustainable use of PGRFA, ensuring that regional agricultural policies align with international frameworks like the FAO's Global Plan of Action for PGRFA. This alignment enhances the sustainability and impact of agricultural practices worldwide.

**CACAARI's (Central Asia and the Caucasus Association of Agricultural Research Institutions), as well as other regional fora, Potential Contribution to PGRFA, are as follows:**

CACAARI can play a significant role in advancing the objectives of Plant Genetic Resources for Food and Agriculture (PGRFA) conservation and sustainable use, as outlined in the GFAiR's mission:

1. **Conservation of Unique Genetic Resources:** CACAARI can focus on the conservation of vital genetic resources, such as wild fruit tree species, including wild apple and apricot. These resources are essential for breeding programs that aim to enhance crop resilience to pests, diseases, and climate change, contributing to biodiversity conservation and sustainable agriculture.
2. **Facilitating Regional Collaboration for Knowledge Exchange:** CACAARI is positioned to strengthen collaboration among national agricultural research institutions across Central Asia and the Caucasus. By facilitating networks for knowledge and practice exchange, CACAARI can contribute to coordinated efforts for the effective conservation and use of plant genetic resources.

3. **Capacity Building and Training Initiatives:** CACAARI can organize specialized training programs to build local expertise in managing genetic resources sustainably. These programs can cover topics such as genebank management, advanced biotechnological tools, and data analysis, equipping researchers and agricultural professionals with the necessary skills to contribute effectively to PGRFA conservation.
4. **Policy Advocacy and Support:** CACAARI can advocate for the integration of PGRFA conservation strategies into national and regional policies. This effort will help align local practices with international standards, such as the FAO's Global Plan of Action for PGRFA, ensuring sustainability and effective policy implementation.
5. **Promoting Climate-Resilient Agriculture:** CACAARI can emphasize research on climate-resilient crop varieties to address environmental challenges specific to the region, such as drought and extreme temperatures. Promoting these crops will contribute to the development of agricultural systems that maintain productivity despite climate variability.
6. **Community Engagement and Public Awareness:** CACAARI can spearhead outreach programs aimed at raising public awareness and engaging farmers and communities in the importance of conserving plant genetic resources. These activities would foster the adoption of sustainable farming practices and ensure that conservation efforts are community-inclusive.
7. **Support for Underutilized and Indigenous Crops:** CACAARI can promote the use and conservation of underutilized and indigenous crops, which are often overlooked but hold significant potential for diversifying agricultural systems and enhancing food security. These crops contribute unique traits that can strengthen agricultural resilience.

#### **5. FORAGRO (Forum of the Americas for Agricultural Research and Technology Development):**

##### **Conservation of Native Maize Varieties**

FORAGRO has been actively involved in projects for the **conservation of native maize varieties** in Latin America. These varieties, essential for food security and cultural heritage, are conserved in both in situ and ex situ gene banks. This research supports the fair and equitable sharing of genetic resources, providing genetic material for future breeding programs, and is critical to the Working Group's focus on **genebank standards and the sustainable use of PGRFA**.

##### **6. EFARD (European Forum for Agricultural Research and Development):**

European private sector and academic stakeholders, many of which are members of/ affiliated to EFARD, are intensively involved in research on plant genetic resources in agriculture. Efforts are focused on European crops (e.g., conserving traditional landraces of cereals and improving their resilience to new environmental stresses like drought and diseases), as well as on crops of importance in other global regions in close collaboration with their partners and stakeholders from the global South.. This aligns with the Working Group's objectives to enhance the sustainable use of plant genetic resources and support the goals of **SDG Target 2.5**, which focuses on maintaining the genetic diversity of seeds and plants.

##### **Conclusion**

Research projects on Plant Genetic Resources for Food and Agriculture (PGRFA) can provide critical insights for the **Commission on Genetic Resources for Food and Agriculture** by highlighting the current state of genetic diversity, identifying key areas for conservation, and suggesting improvements in the sustainable use of these resources. These projects generate data on genetic traits, crop resilience, and the impact of environmental stressors like climate change. By reviewing the outcomes of such research, the Commission can develop more informed policies to ensure the conservation of plant genetic resources and the equitable sharing of their benefits. This aligns with global efforts like the **Second Global Plan of Action for PGRFA** and helps assess progress toward achieving targets like SDG 2.5, which emphasizes preserving agricultural biodiversity. Research findings can also guide the

development of practical tools, such as genebank standards and seed policy frameworks, that enhance the use and storage of genetic resources.

These research initiatives also **inform funding partners' policies** by identifying areas where investment can yield the highest impact in terms of global food security, sustainability, and climate resilience. For instance, research demonstrating the importance of preserving orphan crops or wild relatives of major food crops can encourage funders to support projects that focus on conserving these underutilized genetic resources. Additionally, research on seed systems, regulatory frameworks, and community-based conservation practices can shape funding priorities, ensuring that investments promote inclusive and sustainable agricultural development. By aligning funding with the needs identified through PGRFA research, these projects help ensure that financial resources are directed toward initiatives that not only enhance genetic diversity but also support equitable and sustainable agricultural innovation. 5

The promotion of Plant Genetic Resources for Food and Agriculture (PGRFA) research is highly significant for agroecology research and the DeSIRA program (Development Smart Innovation through Research in Agriculture)<sup>5</sup> under INTPA(International Partnerships of the European Commission). Agroecology emphasizes biodiversity, ecosystem health, and the use of natural resources in a sustainable manner, which closely aligns with the conservation and sustainable use of plant genetic diversity. Research on PGRFA underpins agroecology by providing the genetic base for crops that are resilient to local environmental conditions, support diverse ecosystems, and reduce dependency on external inputs like synthetic fertilizers and pesticides. Such research helps agroecological systems thrive, as it promotes the use of crop varieties that are adaptable, culturally relevant, and sustainable in diverse farming environments, contributing to climate resilience and food security.

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<sup>5</sup> GFAR receives its core funding from the INTPA/DeSIRA+ program

## **H. INTERNATIONAL SEED FEDERATION<sup>1</sup>**

ISF, the International Seed Federation, is an international non-profit organization that is the voice of the private seed industry representing more than 7500 seed companies around the world. In a letter dated September 30, 2024, the Deputy Director-General of FAO, Ms Beth Bechdol, addressed an invitation to ISF to provide a report on its activities related to plant genetic resources for food and agriculture (PGRFA) for the Twelfth Session of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture of the Commission on Plant Genetic Resources for Food and Agriculture. As in previous years, ISF is glad to provide information on its activities in relation to PGRFA. In the present report, we elaborate on the three topics listed below linked to the implementation of the Second Global Plan of Action (GPA) and the Sustainable Development Goals:

1. **CONSERVATION, SUSTAINABLE USE AND ACCESS AND BENEFIT SHARING**
2. **SEED POLICIES**
3. **CLIMATE CHANGE AND PGRFA**

In addition, we provide our thoughts on other matters covered in the agenda of the Working Group meeting.

### **CONSERVATION, SUSTAINABLE USE AND ACCESS AND BENEFIT SHARING**

#### **The basics of plant breeding**

It is a well-known fact that plant breeding is essentially the recombination of existing genetics into new combinations of characteristics which respond better to the ever-changing environmental challenges and needs of society. In their daily work, plant breeders therefore screen for interesting characteristics and recombine plant genetic resources with the aim of arriving to the desired combination of characteristics that can become a new and better adapted commercial variety. This means that plant breeders need access to diverse materials to (i) use PGRFA in a sustainable manner that supports their conservation; (ii) characterize PGRFA traits by phenotype and genotype and, (iii) characterize performance of varieties in farmer conditions.

#### **Plant breeders give crucial importance to the conservation of PGRFA**

Given that PGRs are the basics of plant breeding, it is very important for ISF members that they are properly conserved. Many breeding and seed companies maintain their own collections which practically means that seeds or material of different genetic resources that the company acquired, received or otherwise collected throughout its years of existence as well as samples of the company's own crossing lines, are maintained and conserved for future use in breeding programs. Besides having their own collections, breeders also support the conservation of genetic resources in public gene banks. This support can be in the form of direct financial support, and most often, companies provide in-kind services to gene banks, which means that they receive material from the gene bank and regenerate it for the gene bank. Companies thus use their own assets (land, facilities, and workforce) for planting the seeds of the gene bank material and growing the plants; and they provide the seeds back to the gene bank. Seed companies also participate in public-private partnerships to evaluate and characterize gene bank material, thereby contributing to the efforts of the gene bank to make the material more interesting for all users. A few examples of in-kind support activities to gene banks can be found in the Annex to this report.

#### **Plant breeders use PGRFA in a sustainable manner**

The Convention on Biological Diversity (CBD) states that "Sustainable use" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of

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<sup>1</sup> Originally submitted for information of the Twelfth Session of the Commission's Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture, held in Rome, Italy, from 10 to 12 December 2024 (CGRFA/WG-PGR-12/24/7/Inf.1).

biological diversity. Use of PGRFA as input for plant breeding is sustainable use by definition in the International Treaty on Plant Genetic Resources for Food and Agriculture (the Treaty). In breeding programs, the genetic resources that are conserved *in situ* or *ex situ*, are being effectively used (in opposition of just being conserved but not used at all) by combining existing and creating new variation. As a result, the genetic resources used in breeding are being conserved since they are recombined into new and unique combinations of characteristics. Developing and commercializing new varieties intrinsically comprises characterization of varieties and traits (GPA 8), plant breeding and genetic enhancement (GPA 9), development, commercialization (GPA 11), production and distribution (GPA 12). The seed industry also contributes to information systems (GPA 15), build human resource capacity (GPA 17), and it promotes public awareness (GPS 18).

### **Plant breeders need access to the widest possible genetic pool**

Since genetic resources are the basis for any plant breeding activity, for breeders it is essential that the step between conservation and sustainable use is facilitated by a fair framework that provides for access to the genetic resources. This is a very important bottleneck and much of the work that ISF does in relation to genetic resources at the international level relates to the ongoing international discussions on access and benefit sharing frameworks. In that vein, ISF has always been closely following the international discussions both in the CBD and the International Treaty and has expressed its preference for the ABS system of the Treaty which – with its multilateral approach – responds better to the needs of plant breeding than the bilateral approach followed by the CBD.

ISF has been closely involved in the enhancement process of the Multilateral System (MLS) of the Treaty since 2013. This process was launched by the Governing Body of the Treaty to develop a range of measures to increase user-based payments and contributions to the Benefit-sharing Fund in a sustainable, predictable, and long-term manner and that will enhance the functioning of the Multilateral System also by other measures.

ISF fully supports the objectives of the Treaty, being the conservation and sustainable use of PGRFA and the equitable sharing of benefits arising from their use. In line with those objectives, since the very beginning of this enhancement process, ISF has always underlined that with the enhancement of the benefit sharing system. We also stress that access needs to be improved for the enhancement process to be fully realized. Therefore, an enhancement of the MLS, whereby more material is made available through the new system that includes a SMTA that is more attractive for companies (see below), would be opportune. Consequently, one of ISF's main asks in the enhancement process has been the expansion of the Annex I to all PGRFA and a better implementation of the system by Contracting Parties.

Concerning the revision of the SMTA, and in particular the efforts to improve the benefit sharing modalities to bring more, predictable and sustainable, long-term income, ISF has recognizes that the current mechanism could be enhanced. While it does provide for a payment mechanism for use-based income, Parties must recognize that the development time of a new variety takes several years. This explains the fact that use-based payments only started to flow into the Benefit Sharing Fund in the past 3-5 years.

Nevertheless, the system works since several seed companies are now paying their mandatory monetary benefit sharing on an annual basis (more information can be found about the use-based payments made to the Benefit Sharing Fund here: [The Benefit-sharing Fund: 2022–2023 report](#)). As regards the increasing payments, ISF supports making Article 6.8 payments mandatory (at a reduced rate) as well as a subscription model that simplifies the administrative burdens, removes time lag of benefit sharing, creates legal certainty, and creates more predictable income. ISF asks for a system that is flexible enough to take into account the diversity of plant breeding, the wide range of crops, business profitability and investment approaches. Payment mechanisms need to consider the diversity of users and their needs in accessing and using genetic resources and associated information. Further on, the future MLS should be attractive for users, providing payment obligations that are realistic and

proportionate to the actual value derived from MLS material incorporated into crops sold commercially.

### **Digital Sequence Information**

In the recent years the international discussions on the need to set up a framework for benefit sharing on the use of digital sequence information (DSI) has made the discussions more complex both at the level of the CBD and the Treaty. The use of DSI in research and development is strongly linked to the associated physical genetic resources. Introducing a distinct regulatory framework for benefit-sharing resulting from the use of DSI will further increase complexity and costs for research and development. For plant breeding, it is particularly true that the exclusive use of DSI for the development of a new variety does not occur in practice. In the creation of new crop varieties, plant genetic resources, *i.e.*, seeds, are indispensable to the breeding process, whereas DSI is primarily a research tool. A wide range of DSI might be accessed, generated, and used for a variety of purposes, and each breeding cycle may use different DSI. Genetic sequencing enables the breeding process, by improving its quality, accuracy and speed. Therefore, DSI is neither a commercial product on its own, nor an integral component of the final products that could lead to monetary benefits. This is why ISF remains of the view that establishing benefit sharing obligations for the use of DSI is not useful. If the benefit sharing is triggered by specific DSI access, use, or commercial products derived from specific DSI, it is also not realistic and would hinder progress to achieve the overall objectives of CBD.

### **Mutually supportive implementation**

Given that seed companies are using PGRs as well as other types of genetic resources (such as insects, bacteria, fungi for screening susceptibility etc.) in their breeding activities, even if the Annex I of the Treaty gets expanded to all PGRFA, breeders will have to continue working with both legal frameworks. It is therefore of key importance that the two international frameworks are implemented in a mutually supportive manner and do not result in stacking obligations.

ISF believes that with its activities highlighted in this section, it contributes to the implementation of some of the priority actions of the Second Global Plan of Action (GPA) related to *ex situ* conservation and sustainable use of PGRFA (such as (i) sustaining and expanding *ex situ* conservation of germplasm; (ii) regenerating and multiplying *ex situ* accessions; (iii) expanding the characterization, evaluation and further development of specific subsets of collections to facilitate use). These activities are equally contributing to implementing SDG 2.5 and 2.a. on maintaining the genetic diversity of seeds and implementing obligations stemming from the internationally agreed access and benefit sharing frameworks.

## **SEED POLICIES**

Two actions under the 2nd GPA are (i) promoting development and commercialization of all varieties, primarily farmers' varieties/landraces and underutilized species and (ii) supporting seed production and distribution.

ISF's vision is a world where the best quality seed is accessible to all, supporting sustainable agriculture and food security. To implement this objective, ISF – amongst many other actions – has been engaged in several collaborative initiatives aimed at developing local seed sectors and building up or strengthening seed distribution channels especially in developing countries. One of the pillars such initiatives are working on is the strengthening of the policy and legal framework allowing for the complementary existence of formal and informal seed systems and ensuring that farmers can rely on these complementary channels to source their seeds. At the same time strengthening the regulatory and policy framework can also contribute to creating an environment where more investment can be attracted to such countries and the choice of varieties to farmers can also be increased. We believe that the Commission should explicitly recognize the value of these efforts.

Some of the initiatives ISF is involved in are (i) a public-private partnership between ISF and CGIAR; (ii) ISF's own Seed Resilience Project in Rwanda; (iii) the World Seed Partnership; (iv) a joint

initiative between ISTA-G7-ISF and (v) the Seeds for Food Coalition. The following paragraphs provide more information about these initiatives:

### **(I) PUBLIC-PRIVATE PARTNERSHIP BETWEEN ISF & CGIAR**

In 2023 ISF signed a Memorandum of Understanding with the CGIAR with the view of building a framework for collaboration and cooperation to engage in activities aimed to improve farmers' access to quality seeds and innovation. Through this partnership, the partners commit to achieve the mentioned goals through a range of collaborative activities categorized in four defined clusters: (i) develop a common understanding of the seed regulatory and policy frameworks; (ii) explore opportunities to create and maintain a common communication platform to support stewardship and compliance; (iii) facilitate partnerships on improving seed delivery to smallholder farmers within commonly identified regions; (iv) design innovative models for capacity building of the local and regional seed producers and farmers. A few activities for the implementation of the partnership have already been started.

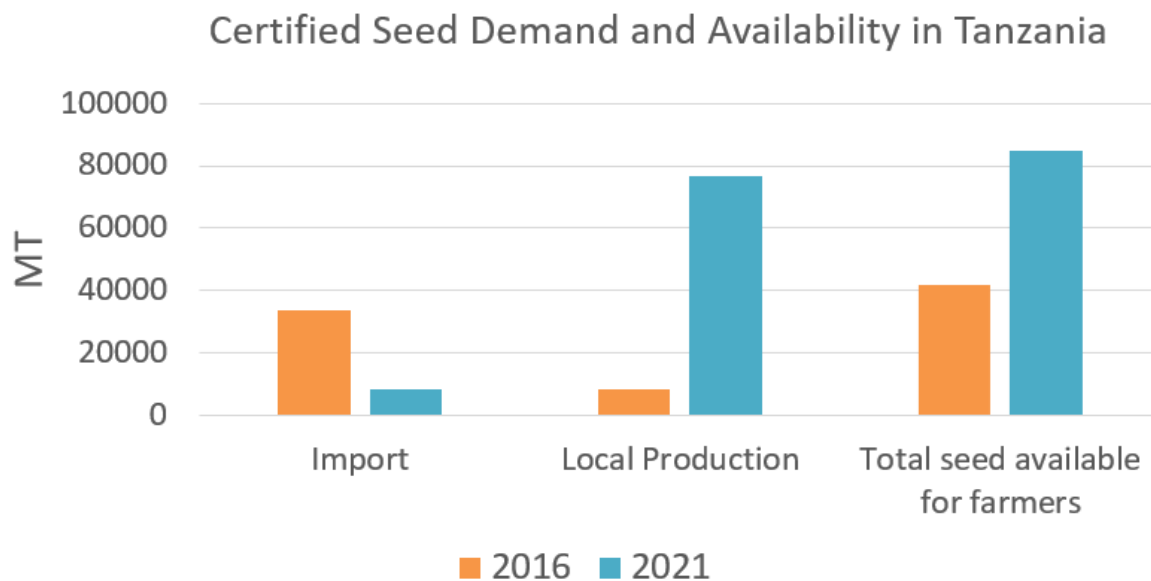
### **(II) ISF SEED RESILIENCE PROJECT IN RWANDA**

In 2023 ISF also launched its own seed resilience project in Rwanda: "harnessing quality seeds for nutrition security in Rwanda". The project is mainly executed by the NGO Fair Planet in close collaboration with a number of local public sector partners in Rwanda. The project is globally aimed at reinforcing the private seed sector in Rwanda and developing a sustainable seed system allowing Rwandan farmers to access quality seeds. The project has three pillars that will be gradually developed: (i) the farmer level pillar, which is aimed at providing access to quality seeds, knowledge and skills to farmers; (ii) the value chain level pillar which will focus on the supply of and access (financially) to quality seed for farmers; and (iii) the policy level pillar which will look at developing an enabling policy and legal environment to guide and structure seed systems activities. The farmer level pillar is based on the concept of demonstration trials where several varieties are grown next to each other and farmers can choose the ones that they feel fits the best their needs. The project is focusing on potatoes and several vegetable crops in the trials traditional, local and commercial (foreign) varieties are equally included to provide farmers with the widest possible choice. Several ISF members contribute to the project both financially and by providing their commercial varieties for the trials. More information is available here: <https://worldseed.org/about/what-we-do/seed-resilience-project-rwanda/>.

### **(III) WORLD SEED PARTNERSHIP**

The World Seed Partnership (WSP) is a collaboration between OECD (the Organization for Economic Cooperation and Development), UPOV (the International Union for the Protection of New Varieties of Plants), ISTA (the International Seed Testing Agency), ISF and the WFO (World Farmers' Organization). The WSP supports countries by providing guidance on policies and regulatory frameworks towards achieving food security and economic development in the agricultural sector. By enabling farmers to have access to high-quality seeds of new plant varieties, it supports sustainable agriculture, and it also aims at providing a platform for communication, information and coordinated actions between the five partner organization. A joint paper that summarizes the benefits of the WSP for farmers is available here: <http://www.worldseedpartnership.org/world-seed-partnership-statement-april-2020.pdf> and more information on the WSP is available here: <http://www.worldseedpartnership.org>

The United Republic of Tanzania was the first country to benefit from the WSP initiative. It is now a member of UPOV, it has a national seed testing laboratory accredited by ISTA, it is a member of the OECD Seed Schemes, and it has strong national seed and farmers' associations in place. The quantity of locally produced certified seeds in Tanzania increased by 910% and those made available to farmers more than doubled within a period of 5 years.



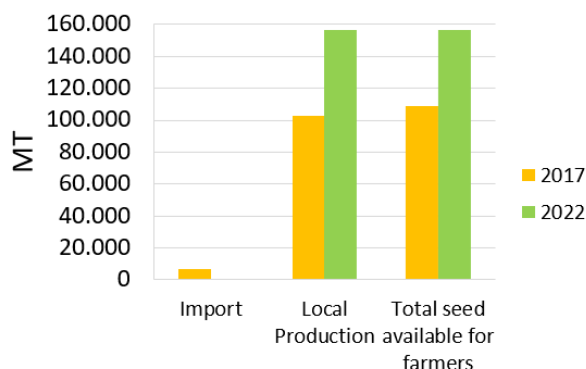
#### **(IV) ISF – OECD SEED SCHEMES CAPACITY BUILDING PROJECT IN AFRICA**

The OECD Secretariat together with ISF conceived a capacity building cooperation project with the aim of providing training and technical assistance to official inspectors, seed farmers, seed companies and their employees and other relevant stakeholders in Africa with regard to the implementation of the OECD seed schemes and the establishment of a seed certification system. For the 5 years initiative a train the trainers program is foreseen aimed at training the future seed certification trainers for Africa; in-country trainings for 12 African countries with follow-up and impact assessment and the provision of a learning platform with digitalized training resources, e-learning tool etc.

To give an example of how this can work, Zambia joined the OECD Seed Schemes in 2017 and benefitted from a similar capacity building training which resulted in an increase of local production of certified seeds and total seeds available to farmers, as well as in a decrease of illegal seeds on the market from 1.92 MT per year in 2017 to 0.015 MT in 2022.



### Certified Seed Demand and Availability for major crops in Zambia



Source: Seed Control and Certification Institute (SCCI), Zambia, 2023

## **(V) SEEDS FOR FOOD COALITION**

As a follow-up to a number of discussions in preparation for and during the UN Food Systems Summit, the Seeds for Food Coalition was formed as a coalition of individuals and organizations from public and private sector. The Coalition aims to achieve seed security for farmers, a vibrant and inclusive seed sector and sustainable and equitable food systems transformation. To achieve its goals, the Coalition works on the following focus areas: (i) facilitation of discussion framework and platforms for constructive and inclusive dialogues; (ii) enhancement of seed value chains through synergies in technological and institutional innovations; (iii) facilitation of advocacy, public engagement and communications; (iv) pursuing enabling regulatory environment and policies and helping to ensure that these are implemented in an effective manner; and (v) supporting farmers' seed resilience to anticipate and plan for disaster risk reduction and management in the context of climate change. The Coalition is currently working with Malawi, Zimbabwe and Mozambique to elaborate action plans to work on one or more of the mentioned focus areas in those countries. More information is available here: <https://worldseed.org/document/seeds-for-food-coalition/>

ISF is of the view that through these initiatives we can get one step closer to a world where the best quality seed is available to all farmers. We believe that these initiatives not only contribute to the implementation of the abovementioned actions of the 2nd GPA but they also deliver on SDG 2.4 by contributing to ensuring sustainable food production systems and implementing resilient agricultural practices that increase productivity and production.

## **CLIMATE CHANGE, PGRFA AND PLANT BREEDING**

Although it is rather self-explanatory, it is worthwhile to note that seed companies, members of ISF, work with PGRFA on a daily basis with the goal of breeding new varieties that are better adapted to the changing climate, provide solutions to farmers which allow for more sustainable practices (such as low input varieties) and varieties that can yield more without taking up more space thereby feeding more people and conserving biodiversity areas at the same time, and which respond better to societal and consumer needs. By their daily activities seed companies thus work towards the goals defined by SDGs 2.1 and 2.3 which are aiming at ending hunger and doubling agricultural productivity by 2030. The seed sector also contributes to SDG 2.a on investment in agricultural research, and technology; SDG 13.1. helping farmers and the food sector to achieve resilience to climate hazards; SDG 15.6 on benefit sharing; SDG 15.8. since plant pests can be seen as invasive species or races, with major impact and SDG 15 because the seed sector helps to optimize the footprint of agriculture on life on land.

## Annex

### Examples of Seed Sector Activities Supporting Gene Banks

#### **Support to maintaining plant genetic resources in public ex situ collections**

Bayer Crop Science provides on-going in-kind support, in the form of yield trials, nursery resources, plant testing, and expertise critical to maintain plant genetic resources in public gene banks, by conducting seed increases for hundreds of accessions annually for crops including cauliflower, cucumber, eggplant, lettuce, maize, melon, pepper, spinach, tomato and watermelon. These increases are performed at the request of the Centre for Genetic Resources of the Netherlands (CGN), French National Research Institute for Agriculture, Food and Environment (INRAE), the United States Department of Agriculture National Plant Germplasm System (USDA-NPGS) and USDA-GEM. For many of these crops, support has been consistently provided for over 10 years, and participation in USDA-GEM lasts for over 25 years. Since 2022, Bayer is engaging with World Vegetable Center in Taiwan, providing in-kind support with vegetable germplasm rescue and conservation.

#### **Support to National Plant Genetic Resources Laboratory**

East West Seeds has a 5-year Memorandum of Understanding with the National Plant Genetic Resources Laboratory (NPGRL)-Institute of Plant Breeding (IPB) in the Philippines to collaborate on crop germplasm conservation, research and training. Within this collaboration the old seed collections of NPGRL are revived at East West Seed Company Quarantine Facility, free of cost. There are more than 1000 accessions of Philippine vegetable crops that have been received and regenerated and the seeds produced were submitted to NPGRL annually.

#### **Vegetable Genebank Indonesia**

East West Seeds in Indonesia in collaboration with Universitas Gadjah Mada (UGM), a public research university, established a Vegetable Genebank in August 2018. The gene bank is assisted by East West Seed Indonesia for ex situ conservation of vegetable genetic resources and is expected to become the center for research and development of vegetables in Indonesia. The gene bank development is one step to conserve and maintain Indonesia's vegetable germplasm from genetic erosion.

#### **Partnership with CGN, Netherlands**

East-West Seed Company through its R&D department has forged partnership with CGN-WUR, in the Netherlands in the areas of 'Crop germplasm regeneration, characterization and collecting missions'. The aim is to assist the CGN genebank in addressing its regeneration backlog and to harness the capability of the private seed organizations as partners in germplasm conservation. In July 2022, East-West Seed received 199 eggplant materials from the CGN collections for regeneration in its farm station in the Philippines; 65 accessions were already planted and undergoing processing for shipment to CGN, the rest are scheduled for planting within this year.

#### **Input in kind to CGN**

Dutch breeders contribute approximately 10-15 % of the budget of the Dutch gene bank CGN (Centre for Genetic Resources). They do this by:

- Taking care of seed multiplication, on the basis of protocols provided by CGN (Centre for Genetic Resources), for various vegetable species, like lettuce, spinach, allium species, peas, faba bean and for field crops like maize
- Evaluating parts of the CGN collection to create more knowledge on the genetic resources, in particular with regard to abiotic and biotic stress; this allows users to make more optimal use of the genetic resources.

Several breeding companies have signed collaboration agreements with the Dutch gene bank CGN to formalize the outlined collaboration and their intention to continue this collaboration in the future.

### **Support to World Vegetable Center**

#### **In-kind contribution to disaster seed kits**

Seed companies have collaborated with the Center to prepare and distribute seed kits after disasters. For example, 8 companies provided seed to survivors of the December 2004 tsunami in Indonesia and Sri Lanka. In 2014, East-West Seed Indonesia provided 10,000 seed kits to people affected by volcanic eruptions in East Java and North.

#### **Technical input**

The Asia & Pacific Seed Association (APSA) closely collaborates with the World Vegetable Centre. For APSA members, the cooperation provides early and priority access to research and development results, the chance to interact directly with World Vegetable Centre staff at workshops; and preferential rates for germplasm and breeding lines. Some APSA companies, have sent their staff to the Centre for short-term training.

The World Vegetable Centre's main benefits are the funding provided; the opportunity to better align the Centre's work with pertinent issues identified by the private sector; and the opportunity to utilize APSA's network to disseminate the Centre's international public goods. APSA also helps expand the Centre's gene bank collection by sharing lines with interesting horticultural characteristics.

25 seed companies participate in an on-going World Vegetable Center-led project to evaluate a set of tomato lines representing different gene combinations for resistance to tomato yellow leaf curl diseases (TYLCD). Participating companies establish field trials in disease hotspots and evaluate TYLCD incidence and severity. Seed companies have also contributed technical support in varietal trials in Africa.

## I. ISLAMIC ORGANIZATION FOR FOOD SECURITY

### Cross-Sectoral Matters

#### 1. Climate Change and Genetic Resources

- IOFS supports climate-smart agricultural strategies, including drought-resistant crop varieties and livestock breeds suited for arid environments.
- Climate Change and Genetic Resources for Food and Agriculture: IOFS promotes adaptive seed systems in CWANA region and drought-tolerant crop varieties while supporting agro-ecological zoning and climate-adaptive policies to enhance agricultural resilience. IOFS leads initiatives to optimize water use efficiency by implementing different interventions like Integrated Water Resource Management (IWRM) for sustainable irrigation and alternative water sources to enhance agricultural resilience.
- We propose a collaborative platform between FAO, IOFS, and other partners to enhance climate adaptation strategies for food and agriculture in OIC countries.

#### 2. Access and Benefit-Sharing (ABS) of Genetic Resources

- IOFS advocates for regional ABS frameworks that ensure fair distribution of benefits derived from genetic resources, particularly for smallholder farmers.
- We propose technical workshops on ABS policy implementation across OIC member states.

#### 3. Digital Sequence Information (DSI)

- IOFS is exploring digital gene banks for plant genetic resources in member states and supports international frameworks for fair access to DSI.
- We propose an FAO-IOFS research collaboration on the use of DSI in sustainable food production.

#### 4. Biodiversity for Food and Agriculture

- IOFS is studying the best modalities for implementing biodiversity conservation initiatives, such as seed banks and gene preservation programs.
- We propose an OIC-wide strategy on biodiversity protection, focusing on native crops and livestock breeds.

### Sector-Specific Contributions

#### 1. Aquatic Genetic Resources

- IOFS supports sustainable aquaculture programs, particularly in water-scarce regions.
- We propose joint capacity-building initiatives on climate-resilient fish species for food security.

#### 2. Animal Genetic Resources

- IOFS promotes sustainable livestock management through indigenous breed conservation programs.
- Capacity building activities on climate smart livestock breeding
- We propose a capacity-building initiative for Member States on the conservation of resilient livestock breeds.

#### 3. Plant Genetic Resources

- IOFS supports regional seed banks to enhance food security resilience.
- We propose an FAO-IOFS study on the impact of seed policies on smallholder farmers.

#### 4. **Forest Genetic Resources**

- IOFS encourages agroforestry and reforestation initiatives to combat desertification.
- We propose a joint FAO-IOFS assessment of forest genetic resources in OIC countries.

Soil Health and Microbial Genetic Resources: IOFS promotes sustainable soil management by encouraging the use of beneficial soil microorganisms for nutrient enhancement and supporting the adoption of organic and organo-mineral fertilizers to improve soil health.

Transboundary and Quarantine Plant Pests and Diseases: To mitigate risks, IOFS supports capacity-building programs on pest and disease surveillance (transboundary and Quarantine pests and diseases), while strengthening biosecurity and phytosanitary measures in OIC member states and fostering international cooperation on biosecurity measures and regional pest surveillance systems to prevent cross-border infestations.

On top of that, the IOFS is currently working with the Republic of Kazakhstan to establish the IOFS Gene Bank in the country to serve all OIC Member States.

## J. OXFAM

Oxfam has extensive experience in the implementation of programs and activities related to the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA)<sup>1</sup>. Having worked with farming communities, farmers' and civil society organizations on the ground for many years, our organization is currently implementing several projects and activities with a focus on improving smallholder farmers' access to, and strengthening their role in the sustainable conservation and use of PGRFA. For example, through Farmer Field Schools, thousands of farmers have been trained in participatory plant breeding, variety selection, enhancement and development; in the use and marketing of local food plants; and in co-creating an enabling policy and institutional environment for farmer-managed seed systems (FMSS), on-farm diversity, and the implementation of Farmers' Rights.

Based on its rich experience strengthening FMSS, Oxfam suggests the Commission consider the following recommendations:

### 1. Safeguard and strengthen support for farmer managed seed systems and Farmers' Rights

To improve resilience to climate change and other shocks, farmers around the world need continued access to PGRFA. The replacement of local varieties by varieties introduced by seed industry, climate change, environmental degradation, commodification of food by industrial actors and the globalization, and homogenization of food systems and standards, have all led to the genetic erosion of PGRFA. Farmers, especially smallholder farmers in the Global South, play a key role in both the production of food for local and regional markets, as well as in conserving agrobiodiversity. Through in-situ conservation of on-farm diversity, they contribute a great deal to the conservation and sustainable use of PGRFA necessary for food and nutrition security. However, despite their undeniable added value, these farmers and their locally embedded seed systems have been historically underfunded, and their needs and realities neglected by policy makers. To strengthen and support farmers' role in the conservation and sustainable use of PGRFA, governments can strengthen agricultural extension service capacities, facilitate collaboration and exchange between farmers and public plant breeders, and prioritize the development of local and territorial seed and food systems, based on agroecology. Improved farmer-researcher collaborations would provide better insights into farmers' breeding preferences, which would likely increase the adoption rate of improved, locally adapted varieties by farmers, benefiting local market development, agrobiodiversity and food security. If decision makers adopted regulatory frameworks that allow for the registration<sup>2</sup> and marketing of more heterogenous farmer varieties it would enable farmers to access and use PGRFA more easily, which would increase both local conservation efforts (*through* use) and local food production.

### 2. Strengthen the multilateral system (MLS) for equitable access and benefit sharing (ABS) for genetic resources for food and agriculture, including Digital Sequence Information (DSI)

Oxfam has noted the efforts of the Commission to promote access to PGRFA and the equitable sharing of benefits through the multilateral system. Acknowledging the historical contribution of farmers and Indigenous Peoples to conserving the world's plant genetic resources, and the sovereign right of countries to exploit their own resources, Oxfam calls for a balanced approach towards ABS, including the sharing of benefits of DSI. In the process of enhancing the MLS, the Commission should encourage ITPGRFA signatories to expand the list of crops in Annex 1, while safeguarding the fair

<sup>1</sup> Please refer to the Oxfam Novib-implemented SD=HS program website for an overview of work accomplished over the period 2016-2023: <https://sdhsprogram.org/>.

<sup>2</sup> Oxfam worked with stakeholders in different countries (e.g. Uganda, Nepal, Lao) to establish Farmer Variety Registration frameworks. Ref. De Jonge et al., 2025: *Developing a registration system for farmers' varieties*: [https://www.sciencedirect.com/science/article/pii/S0308521X24003330?ref=pdf\\_download&fr=RR-2&tr=8f36b8011f810e78](https://www.sciencedirect.com/science/article/pii/S0308521X24003330?ref=pdf_download&fr=RR-2&tr=8f36b8011f810e78)

and predictable sharing of benefits from (commercial) users of PGRFA and preventing improper or illicit appropriation of PGRFA by powerful corporate actors.

### **3. Consider and research the effects of seed policies, laws and regulations**

Increasingly, governments in the Global South adopt seed and plant variety protection laws<sup>3</sup> that are at odds with international frameworks and declarations like the ITPGRFA and UNDROP and jeopardize on-farm diversity and the implementation of Farmers' Rights. Oxfam notes the Commission's work on effects of seed policies, laws and regulations, but observes that the desktop studies executed so far have not been able to provide a full understanding of the regulatory bottlenecks that hamper, nor the best practices that support, farmer-managed seed systems and Farmers' Rights. Oxfam therefore recommends that the Commission prioritize the elaboration of a set of case studies that take stock of the realities and experiences of relevant stakeholders on the ground. Secondly, we observe a worrying trend in which restrictive Intellectual Property constructions (patents) that exclude farmers are used by corporate actors to gain exclusive control over PRGFA. Oxfam recommends for the Commission to discourage members to carelessly deregulate patentable (new) GMOs/New Genomic techniques (NGTs), which would harm agrobiodiversity and hinder farmers' and breeders' unrestricted access to PGRFA (the *breeders' privilege*). Such practice risks further increasing corporate concentration and power in the seed sector, which is already characterized by a harmfully high level of concentration.

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<sup>3</sup> Oxfam partner organization ZAAB in Zambia informed the debate on the country's Plant Variety & Seeds Act and the Plant Breeders' Right Act: <https://zambianagroecology.org/plant-breeders-rights-bill-where-are-we/>

### III. SUBMISSIONS BY OTHER ORGANIZATIONS

#### A. CHINA BIODIVERSITY CONSERVATION AND GREEN DEVELOPMENT FOUNDATION

Dear Commission on Genetic Resources for Food and Agriculture,

Thank you for inviting us to input. I would like to provide the following constructive inputs to enhance the decision-making process and further enrich the thematic discussions for the upcoming Twentieth Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA). These suggestions are aimed at addressing emerging issues in biodiversity conservation, ensuring greater cooperation, and fostering more inclusive and sustainable solutions.

##### 1. Inclusion of Pollinators

I recommend that the topic of "Pollinators" be incorporated as a key element in the discussions. Pollinators, such as bees, butterflies, bats, and other insects, are integral to food production and agricultural biodiversity. They play a critical role in the health of ecosystems, supporting plant reproduction, and maintaining food security. Moreover, pollinators are deeply connected to the broader issues of climate change and ecosystem health, which are essential themes of the Commission. Including a dedicated focus on pollinators will underscore their vital role in sustainable agricultural practices and biodiversity conservation, helping to protect both food systems and the environment.

##### 2. Strengthening Cooperation with MEAs

In the section on Digital Sequence Information and Genetic Resources for Food and Agriculture, I recommend highlighting the need to strengthen collaboration with international treaties such as the United Nations Convention on Biological Diversity (CBD), the Biodiversity Beyond National Jurisdiction (BBNJ), and the ITPGRFA framework. Aligning digital sequence information initiatives with these global agreements will create a more cohesive and effective approach to securing genetic resources, ensuring food system sustainability, and advancing broader goals of human development and environmental health, ultimately enhancing both food security and biodiversity conservation.

##### 3. Role of Communities in the Conservation of Agricultural Biodiversity

For the sections on Aquatic Genetic Resources and Animal Genetic Resources, I strongly recommend acknowledging the vital role of communities in the conservation and sustainable use of agricultural biodiversity. Local and indigenous communities are essential stewards of biodiversity, leveraging traditional knowledge and sustainable management practices. It is critical to incorporate Community-based Conservation (CBC) or Other Effective Area-based Conservation Measures (OECMs) into mainstream food and agricultural biodiversity protection. These approaches should be supported by national policies that empower local communities to actively contribute to conservation efforts, helping build more resilient and equitable food systems that respect local knowledge and practices while safeguarding biodiversity.

From our experience, CBCGDF has successfully protected several valuable food and agricultural genetic resources through Community Conservation Areas (CCAfa), including the Chongren Ma Chicken (from Chongren County, Jiangxi), the Guanzhuang Flower Pig (from Fujian Province), and two traditional buckwheat varieties.

##### 4. Ecological Farms and Protection of Native Varieties in Agricultural Systems

In the section on Implementation and Review of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture, I recommend creating a dedicated chapter that focuses on



Ecological Farms, particularly the protection of local varieties in their native habitats. Local and indigenous agricultural systems, especially those that promote ecological farming practices, are critical for the conservation of plant genetic resources. These farming systems often preserve genetic diversity and traditional knowledge that are vital for ensuring food security in the face of climate change. A focused discussion on the protection of native variety farms, which emphasize agroecological practices and the maintenance of biodiversity, would highlight the importance of preserving local seeds and farming knowledge while ensuring agricultural resilience.

I believe these suggestions will strengthen the thematic framework for the Twentieth Regular Session, ensuring critical issues such as pollinators, community involvement, international cooperation, and ecological farming are properly addressed. These additions will enhance both scientific and policy discussions, promoting a more holistic and inclusive approach to the conservation and sustainable use of genetic resources for food and agriculture. I look forward to seeing these themes discussed in detail during the upcoming session.

## **B. FRENCH INTERPROFESSIONAL ORGANISATION FOR SEEDS AND PLANTS**

SEMAE, as the French recognised interbranch organization for seeds and plants, congratulates the Food and Agriculture Organization of the United Nations (FAO) referring to the Commission on Genetic Resources for Food and Agriculture and the organisation of focused consultations of international instruments and organizations.

In the context of the Multi-Year Program of Work, SEMAE thanks the Secretary of the Commission for inviting SEMAE to provide focused information on its policies, programs and activities relevant to the themes of the Commission's Twentieth Regular Session.

SEMAE, representative interbranch organisation of the seed sector, gathers professional organizations gathering in average more than 80% of stakeholders who are active in the professional chain, ranging from plant breeding, plant variety development and plant reproductive material multiplication, to the use of seed by farmer for agricultural production as well as transformation of agricultural production resulting from them, through the management of plant genetic resources.

The activity of plant breeding is carried out from the diversity of the available phylogenetic resources, from improved varieties, old varieties as well as wild relatives crop genetic resources. This genetic diversity is conserved in France through a decentralized organization by a large range of stakeholders in France, including biological resource centers (Inrae, Cirad, IRD, in association with certain national botanical conservatories), associations (including regional genetic resources conservatories, seed houses, etc.), by breeders themselves, and by some farmers.

Regarding issues related to Plant genetic resources, among prioritized themes of the Commission's Twentieth Regular Session, SEMAE take this opportunity to highlight the following inputs :

- contribution to the French endowment funds “collections and biodiversity”, with annual amount of 100 000 EUROS,
- contribution to the TIRPAA benefits sharing fund for 5 years (2018-2022) with annual amount of 175 000 EUROS,
- SEMAE is engaged in supporting international and national mechanisms in favor of genetic resources, source of material for plant breeding and agricultural/horticultural production. SEMAE supports politically and financially different national and international mechanisms in favor of genetic resources. From 2017 to 2022, SEMAE commits 350,000 euros per year to preserve, enrich and disseminate these resources.
  - At the international level, within the framework of the International Resources Treaty plant genetics for food and agriculture (Tirpaa), SEMAE is the world's leading private contributor to the Global Benefit-Sharing Fund.
  - This strong commitment of the sector is also reflected at the national level since SEMAE is co-founder of the “Collections and Biodiversity” endowment funds and continues thus its commitment through support for national collections of phylogenetic resources. Since 2023, SEMAE continues its efforts by providing 100,000 euros per year at national level.
- The social issues committee established by the administrative council of SEMAE finalized its opinion on the way that plant genetic resources (PGR) are conserved and made available in order to face climate change and to adapt plant variety for the agroecological transition.

Innovation is important for the conservation of plant genetic resources, to have access to techniques adapted to the needs of long-term conservation in order to restore a living plant or transmit characters of interest to future generations of plants. For example, the cryopreservation of certain genetic resources (e.g. potatoes/ project financed by the “collections and biodiversity” endowment funds) is a

solution to secure collections by storing the resources in a frozen state at very low temperature in liquid nitrogen for long-term storage, as a complement to in vitro collections.

- SEMAE is also engaged in promoting the "seed policies"
  - In the area of the OECD seed schemes for the benefit of African countries willing to increase their capacities of agricultural and food production as well as seed exportation in the following countries: Burkina Faso, Rwanda, Togo, Ivory Coast, Senegal during the last 3 years;
  - In the area of intellectual property protection: technical support provided to Ghana prior to its accession to UPOV in 2023 with the support of FranceAgriMer (French establishment for agricultural and fisheries products) ;
  - support for the development of an association of farmers' organizations in relation to seed production issues of Madagascar ;

For the seeds and plants sector, in addition to the necessary strengthening of the mechanisms of support, including financial support, for conservation, long-term management of resources plant genetics, their evaluation/characterization and sustainable use, a new field around genetic resources has been made possible as result of research and innovation some years ago: DSI, as Digital Sequence Information. The current negotiations on a legal regime applicable internationally on the use of DSI pose great uncertainties to public and private research operators in the plant genetic resources and plant breeding sectors regarding their commitments to characterization and evaluation of the genetic resources of cultivated and wild related species. The risk is by fact to slow down investment in knowledge of plant genetic resources, and to consequently reduce the development of new resources.